nuary 1946

Chemical Industries

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Intelligent Handling of Complaints Sells Chemicals p. 49

IN PEACE ... as in war

Dyes Need Alkalies

SODA ASH

CHLORINE

CAUSTIC SODA

CAUSTIC POTASH

SODIUM NITRITE

Dyes as varied as an artist's palette . . . they create rich, dramatic hues which accent the new synthetic and natural fabrics for peacetime. Vital to the manufacture of Azo dyes and for textile dyeing are alkalies and related products . . . proving that in peace as in war alkalies are indispensable!

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Carbon Tetrachloride
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Perchlorethylene
Sulphur Monochloride
Trichlorethylene
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Sodium Phosphates
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Sodium Tripolyphosphate
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Fosklor *T. M. REG
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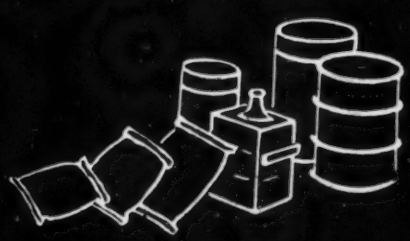
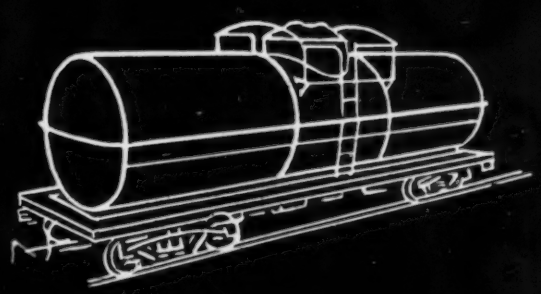
Hydrated Lime
Hydrobromic Acid
Hydrogen Peroxide
Magnesol *T. M. REG
Methyl Bromide
Quick Lime
Sodium Sulfide
Strontium Hydrate





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PIONEERS AND LEADERS IN THE MANUFACTURE OF CHEMICAL BLEACHING AGENTS

THE CHEMICAL BUSINESS MAGAZINE

Chemical Industries

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NUMBER 1

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DEPARTMENTS

NEWS OF THE MONTH

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THE READER WRITES

Chemistry in the Philippines

To the editor of Chemical Industries:

You may be interested in the present plight of chemistry teaching in the Philippines resulting from the Jap occupation as described in a letter I have recently received from Dr. Antonio I. de Leon, Department of Chemistry, University of the Philippines, Manila, a portion of which is attached hereto.

Dr. de Leon did his graduate work at the University of Minnesota, completing the requirements for the doctorate in 1930, and returned to the Philippines to teach.

You will note from his letter that there is a great need in his department for all kinds of chemical literature. I am sure that anything of this nature that anyone in the States would care to send to Dr. de Leon would be greatly valued and appreciated.

JOHN L. WILSON
Economics Laboratory Inc.
St. Paul 1, Minn.

A portion of Dr. de Leon's letter to Dr. Wilson is reproduced below.—EDITOR.

Dear John,

The past four years have been years of hardship, terror and misery. The Japs occupied the university campus and robbed and destroyed official as well as private property. I lost my portable Remington, slide rules, fountain pens, clothes, and money. They allowed the university to open only the pre-med, medical, engineering and agriculture departments in October 1942. I was one of three faculty members in the chemistry department called for duty. Students were clamoring for education. Both materials and space were lacking, but we tried our best. Except for the elimination of political science courses and the introduction of Nippongo, we kept our science curriculum intact.

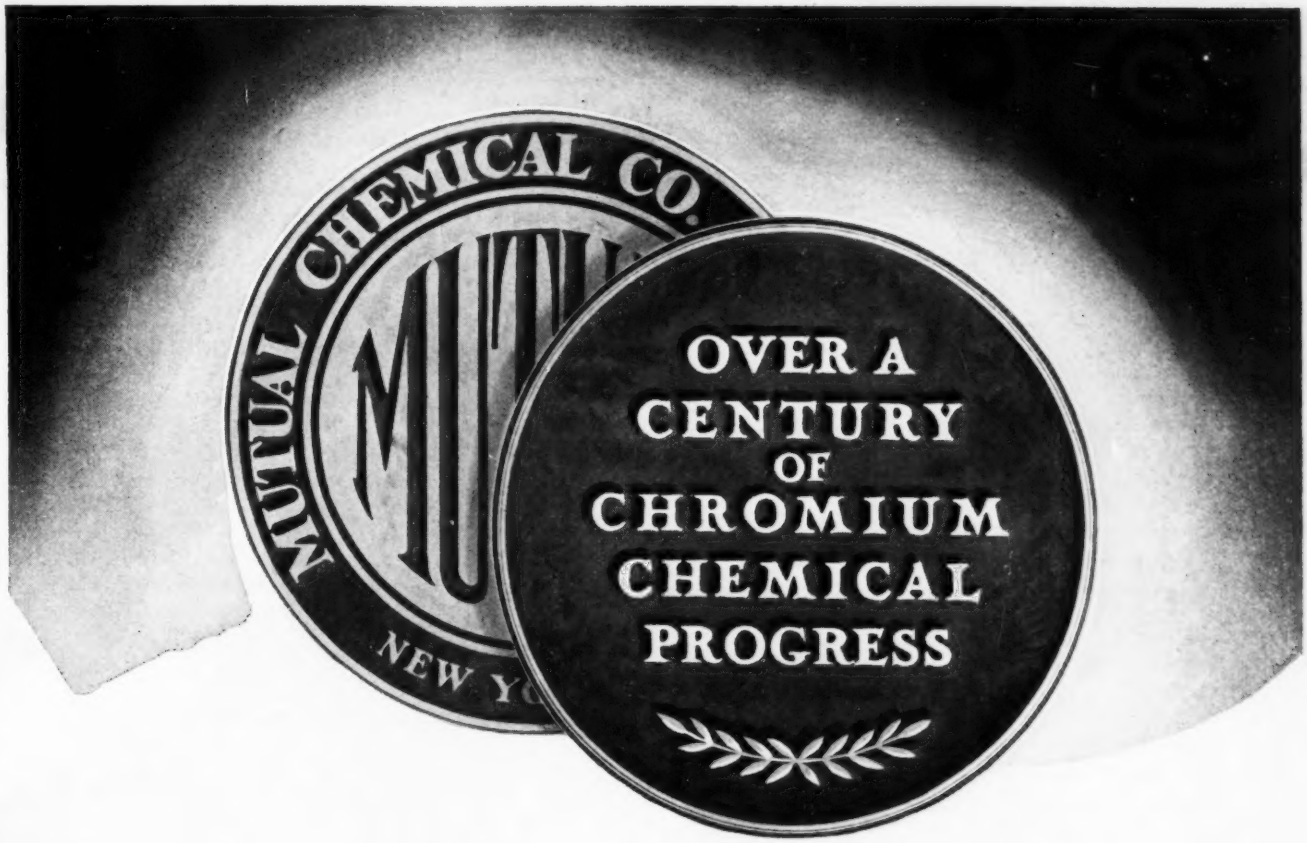
In October 1944 I insisted on leaving Manila after the first semester and went to join my family at my wife's home town about 13 km. from Manila. I moved the family as early as April 1944, as I sensed the end was approaching. The February burning of Manila caught me at Malabon. Had I stayed in Manila, I would be dead now, for the house I was staying in all the time I was at the University and the house of one of my mother's sisters were both burned and the occupants shot and burned. I lost all my books, lecture notes, research records and clothes. By the grace of God everyone in the family was spared, and the house I bought in 1941 was saved from fire. The houses to the right and left and behind my house were burned, but mine was not except for the wooden fence. There is where we are now staying. I am renting the upper part to an American family who lost their house during the burning last February.

There has been a blackout on reading matter and literary and scientific material since December 1941. Now I sometimes can read some magazines belonging to G.I.'s. I believe I shall still have charge of the industrial courses on technical and food analysis, so any material you can send me along these lines will be appreciated. Also anything on cellulose plastics or plastics in general. I lost all the samples I was able to collect from different commercial firms and shall have to start all over again.

We are now located in Philippine General Hospital and the Cancer Institute building. The buildings were partly damaged by fire and shelling, so we have had little space to hold classes but we attempt to do the best we can. We have two analytical balances for the whole university, and there is no distilled water. We dug wells and the janitors get water from these wells and keep it in bottles for the students. We were able to save some glassware hidden in the basement of the Institute of Hygiene, but all chemicals were destroyed. We hope the order we placed last May is coming soon so we can use it in the second semester which opens January 3.

All the scientific books in the Bureau of Science and University of the Philippines library were burned. The other education institutions were no better off. There are no journals or reference books available, in fact, the university is back to 1908 when it first started, so far as facilities are concerned. If you can interest anyone in donating old editions or duplicates of books to the University library, I am sure this will be appreciated. I have heard of two medical men from Michigan who died and their widows have donated their whole personal libraries to the University.

A hearty embrace from your friend,
ANTONIO I. DE LEON
Department of Chemistry
University of the Philippines
Manila, P. I.



Beginning Our Second Century of Chromium Chemical Progress

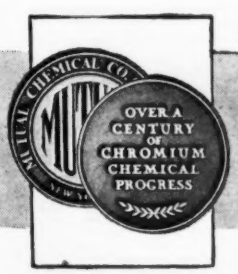
One hundred and one years ago when the predominating features of the sky line of Baltimore were masts and a few steeples, the foundations for the present Mutual Chemical Company of America were being laid there by Isaac Tyson, who built the first chromium chemical plant in this country.

About forty years later Augustus Schultz determined the fundamental principles of two-bath chrome tanning. This process was rapidly adopted, and followed by a one-bath process development.

Since that time interest in chromium chemicals has grown by leaps and bounds until today these compounds play a vital part in industrial life. Important applications include anodizing aluminum, chrome plating, metal cleaning, and corrosion prevention.

The manufacture of such pigments as zinc chromate and chrome oxide green preservation are other industries using chromium chemicals.

Mutual Bichromates are widely used throughout industry. Prompt shipments are made from Mutual's plants or distributors' warehouses.



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WASHINGTON

T. N. SANDIFER *reporting*

Chemical Warfare Service . . . Scientific Personnel . . . Atomic Energy . . . Chemical Employment Potential . . . Argentine Alcohol . . . Enemy Technical Publications

Scientific Personnel Problem Getting Belated Action

SENATOR MEAD (DEM., N. Y.) recently introduced into the Congressional Record a resolution adopted by the Association of Colleges and Universities of the State of New York calling attention to shortages of technical and managerial personnel, including engineers, chemists, and physicists, which threaten to cripple American industry for the next 5 years.

Congress has been extremely critical of service policy in delaying the return of physicians to civilian practice, but only recently has it been generally agitated over the parallel situation in the case of technically-trained personnel to a point where it is getting results.

The results are only conditional as yet. Selective Service national headquarters has sent a memorandum to local boards asking them to "give serious consideration" to occupational deferment of registrants who are accepted for specified advanced engineering and science studies at accredited institutions, who are teachers in specified fields, or who are engaged in certain research, meeting, in each case other qualifications.

It will be noted that is merely a request: Selective Service has always maintained that it has no real authority over local boards on specific cases. The action was only taken at the instance of the Office of Mobilization and Reconversion.

The measure was immediately followed by an attack in Congress by Representative Gordon L. McDonough, California, author of a bill which would have made such action mandatory; his bill has been locked up in committee. His bill has been widely endorsed by interested scientists and universities, and the Congressman was indignant that the end should be sought through bureaucratic "directive" rather than through forthright legislation.

Meanwhile, publicity channels are churning with information designed to offset the alarm manifested by spokesmen for scientific interests and universities.

Selective Service promptly reported a "survey" disclosing that the number of male students enrolled in scientific courses under Army and Navy Special Student Programs during the war "virtually offset the loss of male scientific students through induction into the armed forces."

On exactly the same day that Selective Service issued its reassuring report, the U. S. Office of Education stated that college and university enrollment this Fall showed an upward swing of over 200,000, an estimated 25 percent increase over last year's figures.

CWS Looks for Peacetime Teamwork with Industry

CHEMICAL WARFARE SERVICE is moving to carry into peacetime the links it developed with the private chemical industry in war.

Major General Alden H. Waitt, new chief of the service, recently called for "an alert and progressive chemical industry" to insure the future security and advancement of the country.

Pointing to the many chemical developments that startled the nation's enemies in the recent fighting, he reported that the CWS is now reviewing all its own research projects, with the object of releasing to industry, wherever possible, any material or information of value. Technical data accumulated over the past several years are already being made available to private chemical industry, he stated.

Among other steps, CWS plans to supplement its own research on future chemical warfare matters by enlisting in its behalf "the best brains" it can find in industry and among educational institutions. It plans to interest technical schools in establishing research fellowships for problems on national defense.

CWS intends to make available a number of installations left from its war activities for use, in part, on important peacetime studies of a chemical nature. Among these are the large chemical and medical laboratories at Edgewood Arsenal, proving grounds in Utah testing facilities in the West and South, and facilities for tropical research near Panama.

Atomic Energy Is Major New Year Issue

CONGRESS HAS DONE LITTLE with the Ball bill, or any other legislation establishing atomic energy policy, but is expected to enact a general measure in the coming year. The Ball bill was offered as a substitute for the

May-Johnson bill, approved by the House Military Affairs Committee and generally regarded as the Administration measure. The Ball bill would restrict secrecy solely to military aspects of the matter.

The Alien Property Custodian, meanwhile, has revealed the use of German scientific data on atomic energy in developing the American A-bomb. His report, dealing with the policy of re-publication of enemy scientific papers, stated that among the 3200 issues of enemy scientific periodicals republished during the past two years by the Alien Property Office were many on phases of atomic fission and related subjects.

Chemical Industries Could Expand Employment, CPA Administrator Claims

ANALYZING the additional employment possibilities in expanded postwar industries the CPA finds that chemical and petroleum products manufacturers could hire 30,000 new workers if war-expanded facilities now owned by the Government could be utilized. The synthetic rubber industry could use 23,000, and aviation gasoline, 7,000.

Studying some 4.6 billion dollars' worth of expanded plant capacity for which it would like to find work, the CPA said that if it were possible to convert readily-usable Government-owned plants to peacetime production in all fields, a total of 470,000 additional workers could be employed.

Argentine Seeks Alcohol Producers

THE ARGENTINE EMBASSY at Washington has issued an invitation to American industry to bid for the annual provision of about 32,000,000 gallons of anhydrous ethyl alcohol over a period of ten years.

The terms will require manufacture at one or more distilleries in the Argentine, from corn or other material to be furnished by the Argentine Government, which will guarantee to purchase the resulting product up to the specified quantity. Information is obtainable from the Embassy, but bids are to be submitted to an Argentine agency at Buenos Aires February. 9.

Enemy Technical Publications

A SIDELIGHT of this report disclosed that the German decision to continue with publication of scientific data, even after the war, was indirectly valuable to us. The war cut off the regular channels of supply of European scientific publications in many countries. However, in 1943, the APC, on advice of experts, established a basic list of 125 journals, and completed arrangements for obtaining and reproducing them by an offset process for distribution through regular trade channels.

Product improvement does not need to depend on new materials or methods. Many reliable "stand-by" materials often hold the answer. For example, a more dependable Caustic Potash can add to the essential value of soap . . . pharmaceuticals . . . perfume bases . . . dyes . . . chemicals . . . engraving and lithographic materials and other products and processes. Out of its pioneer experience and by means of exceptionally rigid methods of control over the production of "KOH", Niagara is constantly striving through research to help customers achieve better results in its use.

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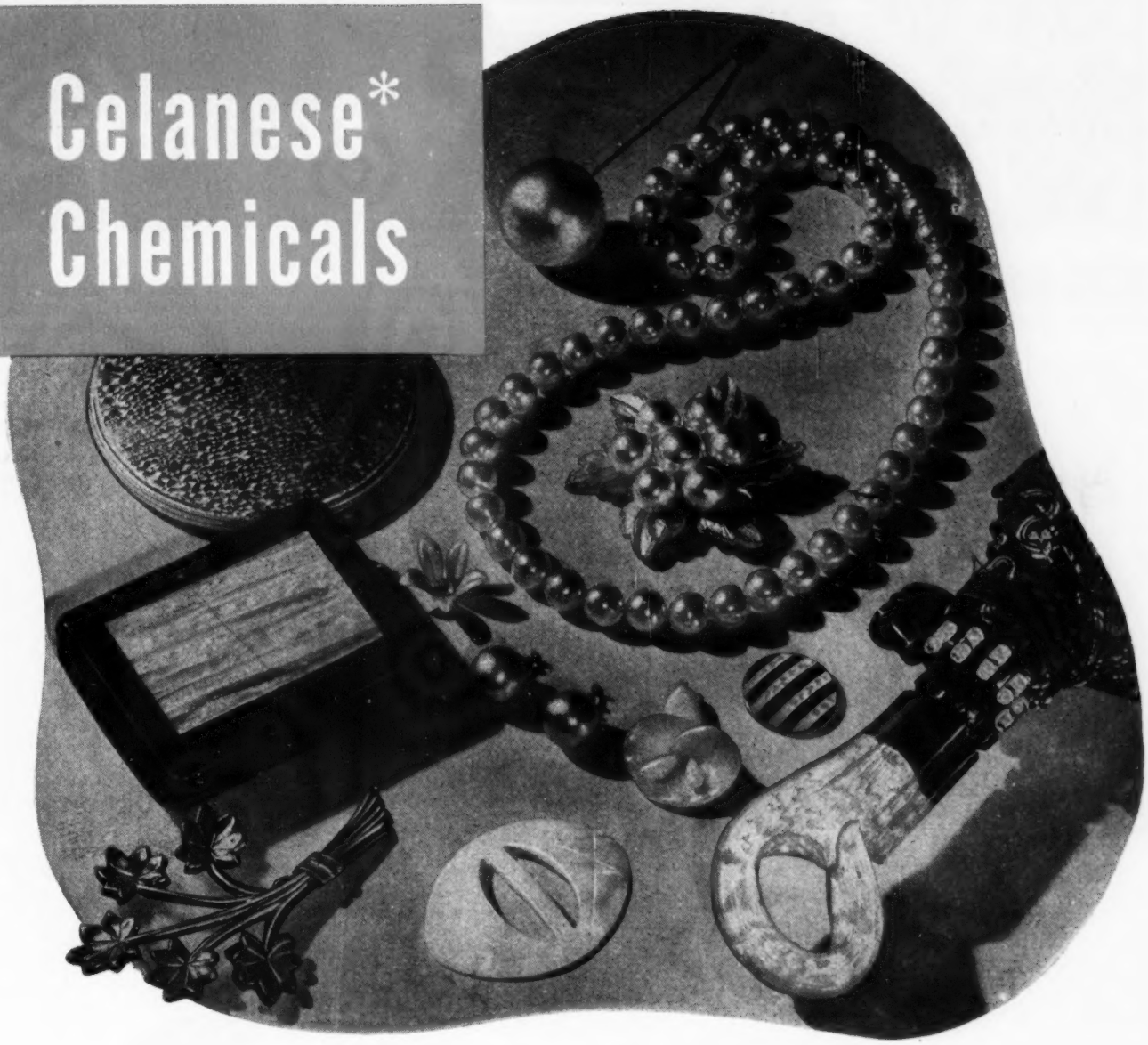
Celanese* Chemicals



RESEARCH BUILDS A STOCKPILE OF IDEAS

Production of Celanese H-Scale* is being increased to meet greatly enlarged demands occasioned by the present shortage of fish scale. H-Scale, a synthetic pearl essence, is used in jewelry and plastics dips, lacquers and metallic finishes.

H-Scale is a dispersion of very minute pure white nacreous crystals suspended in vehicles for incorporation in coatings. Because of its remarkable brilliancy, only a small amount is required in a clear lacquer or dope to produce a film with a silvery sheen or lustre.

To industries with unfilled orders for imitation pearls, jewelry, compacts, casket trim, electrical fixtures, novelties and other hundreds of consumer specialties, H-Scale will prove a real life saver.

In the "stockpile" of ideas accumulated through research, opportunities for service to industry often arise. It is a rule at Celanese not to overlook them.

Celanese Chemical Corporation, a division of Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.

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*Reg. U. S. Pat. Off.

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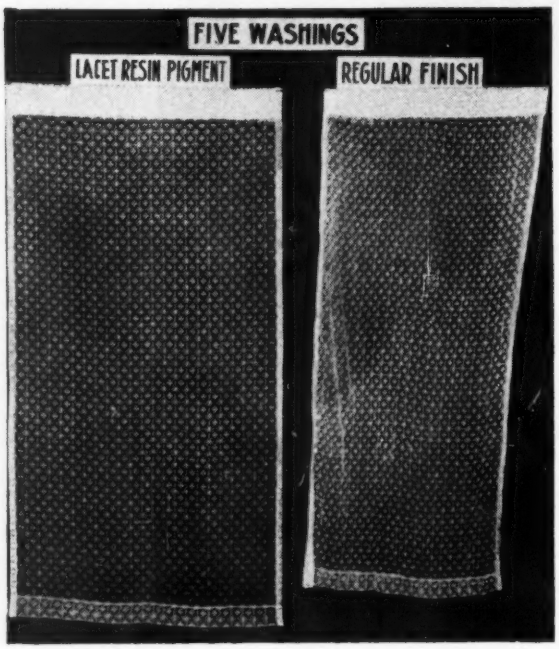
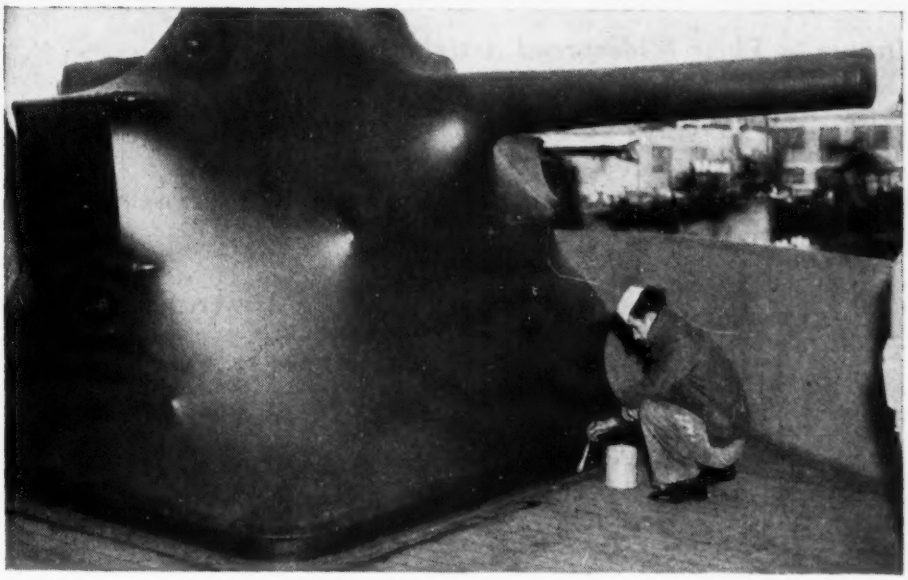


(Left) **A DURABLE, CRISP FINISH FOR LACE CURTAINS,** known as LACET† resin, has now been developed by the Textile Resin Department of Cyanamid. It can be applied to cotton, rayon, nylon, or acetate Nottingham lace curtains during pigment dyeing or finishing to serve as a permanent stiffener to prevent stretching, sagging, and shrinking, even after repeated launderings. LACET also contributes to soil resistance and eliminates need of framing and ironing. It can be used to bind pigment colors, thus producing improved light-fast fabrics. Curtains retain their original firm texture and wear longer when treated with LACET. This curtain finish is one of a group of new, permanent, melamine resin textile finishes recently developed by the Textile Resin Department. LANASET** resin controls wool shrinkage, AEROSET† resin provides resistance to gas fading of acetates, and SHEERSET† resin stabilizes crispness of finish in rayon and cotton sheers.

(Below) **A "SOUND" INVESTMENT IN MELMAC* PLASTIC!** There were many reasons why Sonotone chose MELMAC plastic for this ultra-modern hearing aid receiver and transmitter housing. It could be molded in a flesh tone that was almost a perfect match for the human skin, as well as in black, if desired. Its hard permanent surface retains its clean, bright luster in spite of perspiration. It doesn't scratch or mar easily and is pleasant to the touch. From the manufacturer's point of view, the naturally lustrous, glossy surface saved hours of buffing time in the finishing process. Added to this, MELMAC had the advantages of lightness in weight, chemical inertness, resistance to moisture and heat, and dimensional stability. All in all, it provides an ideal housing for the compact 3-tube audio-frequency Sonotone mechanism. MELMAC is only one of the Cyanamid plastics, developed by the Plastics Division, that is finding a wide range of modern, practical, and sales-creating applications for industrial and consumer use.

Chemical Newsfront



(*Left*) **A NEW RUST-PREVENTING TECHNIQUE** has been developed by technologists in the Philadelphia Navy Yard to protect our battleships against the ravages of rust and moisture while they go into retirement as part of the Navy's "Stand By" fleet. The process is called "pickling" or "dehumidification" and is estimated to keep 70 per cent of the peacetime fleet from deterioration. Each stripped-down gun, such as this 5-inch deck gun aboard the U.S.S. Brooklyn, is covered with a hot paint sprayed over a netting. Air is then sucked from inside the covering by a dehumidification machine to prevent any rust or decay for years to come.

*Reg. U. S. Pat. Off. †Trade-Mark

**LANASET is a registered trade-mark of American Cyanamid Company applied to its melamine resin for controlling wool shrinkage. The process under which it is applied is covered by United States reissue Patent No. 22,566.

(*Below*) **AS MILLIONS OF AMERICAN MEN** return to civilian attire, extensive processing of fine leathers for business and sportswear is being resumed. TWECOTAN*, Cyanamid's line of vegetable tanning extracts which has been so widely used to add fullness and solidity in retanning all kinds of military leather is again available for use in processing leather for civilian wear. Cyanamid's BETASOL* OT can be successfully applied in every tanning operation where wetting agents are needed. Other specialties for improved, economical processing include CUTRILIN* Bate, TANAK* Synthetic Tanning Material, and DEPILIN* Unhairing Agent. Cyanamid's technical service is also available at all times to assist the tanning industry in securing the best results with these products.

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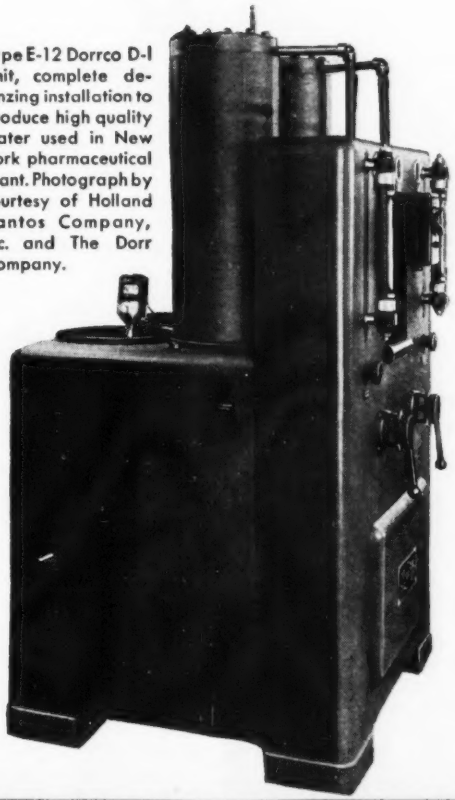


Type E-12 Dorrco D-1 Unit, complete deionzing installation to produce high quality water used in New York pharmaceutical plant. Photograph by courtesy of Holland Rantos Company, Inc. and The Dorr Company.

THE cost of AMBERLITE treated water varies with specific conditions, of course. Holland-Rantos Company uses a blend of Croton and Catskill waters. Deionization is effected at the rate of 240 gallons per hour, and the high capacity of the AMBERLITES permits the deionization of 7500 gallons of water between regenerations, accomplished with such low-cost chemicals as sulfuric acid and soda ash.

Whatever the circumstances, deionized water can always be produced with the AMBERLITES at a fraction of the cost of distillation, and quality of the treated water remains uniformly high throughout the entire operating cycle.

Whether you need high quality water to supply an entire processing plant—or a laboratory—it will pay you to investigate the AMBERLITE Ion Exchange Resins. Write for further information today.

* If purchased in large quantities, the cost of these chemicals would be only 2.37¢ per 1000 gallons. (At 1¢ per lb. for 66° Bé sulfuric acid and 1.5¢ per lb. for soda ash).

AMBERLITE *is a trade-mark, Reg. U. S. Pat. Off.*

THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

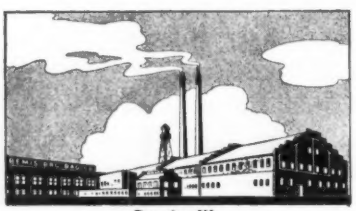
Maybe we've been too Modest

ABOUT BEMIS MULTIWALL PAPER SHIPPING SACK FACILITIES

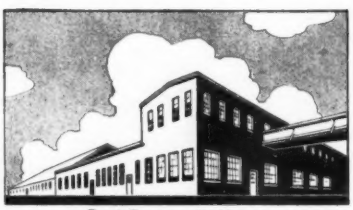
For years, Bemis has been a leading manufacturer of multiwall paper shipping sacks. Six plants, strategically located north, south, east and west, have given Bemis customers the advantages of flexibility and capacity in production.

During the war, this flexibility and capacity, plus the Bemis system of planned production, enabled us to do a big job. Yet, in addition to supplying multiwall paper shipping sacks to our Armed Forces, Bemis made an unusual record in fulfilling shipping promises and maintaining quality for its regular multiwall customers.

When you need multiwall paper shipping sacks for old or new products, think of Bemis. It pays to be a Bemis Multiwall Paper Shipping Sack customer.

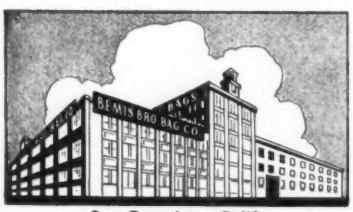


Peoria, Ill.



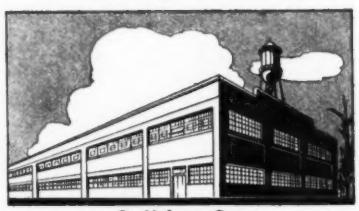
East Pepperell, Mass.

Mobile, Ala.



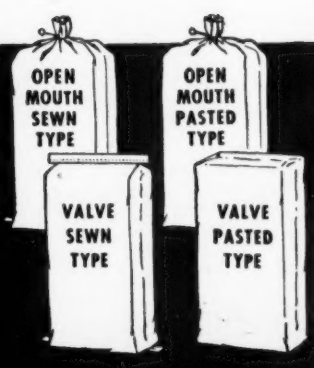
San Francisco, Calif.

Wilmington, Calif.



St. Helens, Ore

Bemis Multiwall Paper Shipping Sacks



Peoria, Ill. · East Pepperell, Mass. · **6 PLANTS** · Mobile, Ala. · San Francisco, Calif. · Wilmington, Calif. · St. Helens, Ore.

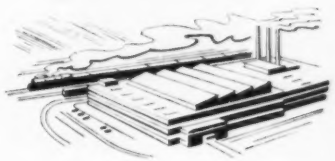
BEMIS BRO. BAG CO.

OFFICES Baltimore · Boston · Brooklyn · Buffalo · Charlotte · Chicago · Denver · Detroit · East Pepperell · Houston · Indianapolis · Kansas City · Los Angeles · Louisville · Memphis · Minneapolis · Mobile · New Orleans · New York City · Norfolk · Oklahoma City · Omaha · Orlando · Peoria · St. Helens, Ore. · St. Louis · Salina · Salt Lake City · San Francisco · Seattle · Wichita · Wilmington, Calif.

From the Dow "Library"
of Special Chemicals

Ethylene Chlorhydrin
Propylene Chlorhydrin

Intermediates for many industries



available from Dow

Ethylene Chlorhydrin and Propylene Chlorhydrin are "construction chemicals", useful in the synthesis of many industrially important organic compounds.

To illustrate the possibilities of these intermediates: Ethylene Chlorhydrin reacts with caustic to give ethylene oxide; with sulphuric acid to give dichlordiethyl ether; with alkali cellulose to give hydroxyethyl cellulose; with sodium sulphide to give β-thiodiglycol. It is used in making acrylic acid and its esters, substituted propionic acids, phenyl ethyl alcohol and novocaine. The use fields of Propylene Chlorhydrin are similar.

Dow offers these chemicals in 55-gallon drums to tank car lots, depending on availability status. Your inquiries are invited.

PROPERTIES

Both Ethylene Chlorhydrin and Propylene Chlorhydrin are clear, colorless liquids with a sweet, alcoholic odor.

	Ethylene Chlorhydrin	Propylene Chlorhydrin
Boiling range, 760 mm. Hg, 5-95%	126-129° C.	127-129.5° C.
Specific Gravity at 25° C.	1.110	1.200
Pounds per gallon at 25° C.	9.2	10.0
Freezing Point	40° C.	−40° C.
Refractive Index at 25° C.	1.437	1.440
Flash Point	125° F.	145° F.
Fire Point	130° F.	150° F.
Solubility	Miscible with most common organic solvents	Miscible with most common organic solvents

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis
Houston • San Francisco • Los Angeles • Seattle

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND AGRICULTURE

Simplicity in Acid Plant Operation

The operation of a CHEMICO Acid Production or Recovery plant is SIMPLE as well as efficient. A single instrument board centrally controls and records all operations. Only a small operating crew is required, and those men are initially trained by the CHEMICO engineers before the plant is turned over to its owners. In addition, maintenance expense is minimized by the efficient design of plant and selection of equipment based on the 30 years of specialized experience of the CHEMICO engineers. These are some of the reasons you can be sure of satisfactory results from a CHEMICO plant.

CHEMICAL CONSTRUCTION CORPORATION

A Unit of American Cyanamid Company

EMPIRE STATE BLDG., 350 FIFTH AVE., NEW YORK 1, N. Y.

Cables, Chemiconst, New York • European Representatives, Cyanamid Products, Berkhamsted, Herts, England

CHEMICO PLANTS are PROFITABLE INVESTMENTS

PROCTOR RESEARCH

eliminates guesswork in selecting drying equipment

Because of the accurate work done by Proctor research engineers, it is possible for Proctor & Schwartz to guarantee the performance of every drying system installed. Every single phase of the dryer's performance is clearly established by Proctor engineers before the sales contract is signed. You can see the effect of this on your production and costs. It, once and for all, eliminates any element of guesswork in selecting your equipment . . . often saving many production hours and considerable money. Not only this, but so thorough is the work of Proctor research, that it has frequently eliminated the necessity for a pilot plant. The data assembled by Proctor engineers over the years, the up-to-date testing equipment at their finger tips, plus their long experience in dealing with drying problems—makes it possible for them to interpret their laboratory findings in the light of commercial practice. The Proctor drying system recommended to you, after a thorough study of your drying problem, will be one suited in every detail to your individual needs. If you are considering any process that includes drying—it will be to your own selfish advantage to consult Proctor & Schwartz first.

PROCTOR & SCHWARTZ • INC •

PHILADELPHIA 20 • PA •

RE-EXAMINE the characteristics of

CSC

Dibutyl Sebacate

. . plasticizer and solvent for

SYNTHETIC RUBBER • PLASTICS COATING MATERIALS

• Dibutyl Sebacate's wartime applications proved it exceptionally efficient as a plasticizer and solvent for contributing low-temperature flexibility to plastics and synthetic rubbers—especially those of oil-resistant type.

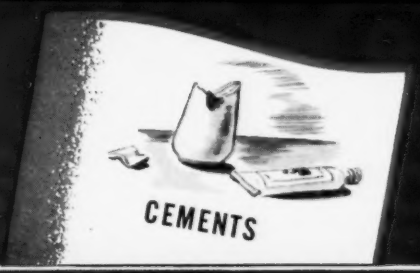
• Relatively low proportions of Dibutyl Sebacate are required to secure flexibility and softness in polyvinyl acetate, butyral and chloride coatings, and in vinyl and acrylic resins.

• Retention of clarity and freedom from yellowing make CSC Dibutyl Sebacate the ideal plasticizer for transparent materials, such as the resins used in safety glass.

• Dibutyl Sebacate's peacetime possibilities are indicated as important applications in many new products, whose development should arise from utilizing the characteristics of this high-boiling, water-white, practically odorless and tasteless liquid chemical.

Samples and experimental quantities are now obtainable.

COMMERCIAL SOLVENTS
Corporation
17 East 42nd Street, New York 17, N. Y.



Wartime applications of this product indicate its wide usefulness for TODAY'S NEW *products*

PROPERTIES OF CSC DIBUTYL SEBACATE

MOLECULAR WEIGHT: 314.45
MELTING POINT: −8 C
FLASH POINT: 180 C (356 F)
DISTILLATION RANGE: 175 C to 180 C at 3 mm Hg
COLOR: Water-white
REFRACTIVE INDEX: 1.4423 at 20 C
ODOR: None
PURITY: Not less than 98.5% by weight
SEDIMENT: None
ASH: Not more than 0.001% by weight
COPPER: None
IRON: Less than 0.3 part per million
SPECIFIC GRAVITY: 0.934 to 0.938 at 20 C/20 C
ACIDITY: Not more than 0.05% calculated as sebacic acid
WATER: No turbidity when one volume is mixed with 19 volumes of 60 Bé gasoline at 20 C
SOLUBILITY IN WATER: Insoluble at 25 C
SOLUBILITY OF WATER IN DIBUTYL SEBACATE: 0.2% by weight at 25 C
WEIGHT PER U. S. GALLON: 7.79 lb at 68 F
COEFFICIENT OF CUBICAL EXPANSION: 0.00043 per F (0.00078 per C) at ordinary temperatures

avoid damage from "in-the-package" moisture

no rust no corrosion in this container

The illustration shows Mr. Otto Mueller, packaging foreman, inspecting one of his Ampro Sound-On-Film Projectors sealed tightly within a representative moisture vapor-proof barrier, ready to be placed in a shipping carton. Packed within the barrier, with the Projector, are three small bags of Jay Cee Silica Gel . . . which adsorb "in-the-package" moisture and prevent damage from rust or corrosion.

(Cellophane packaging was used in this illustration as a substitute for the actual wrapping).

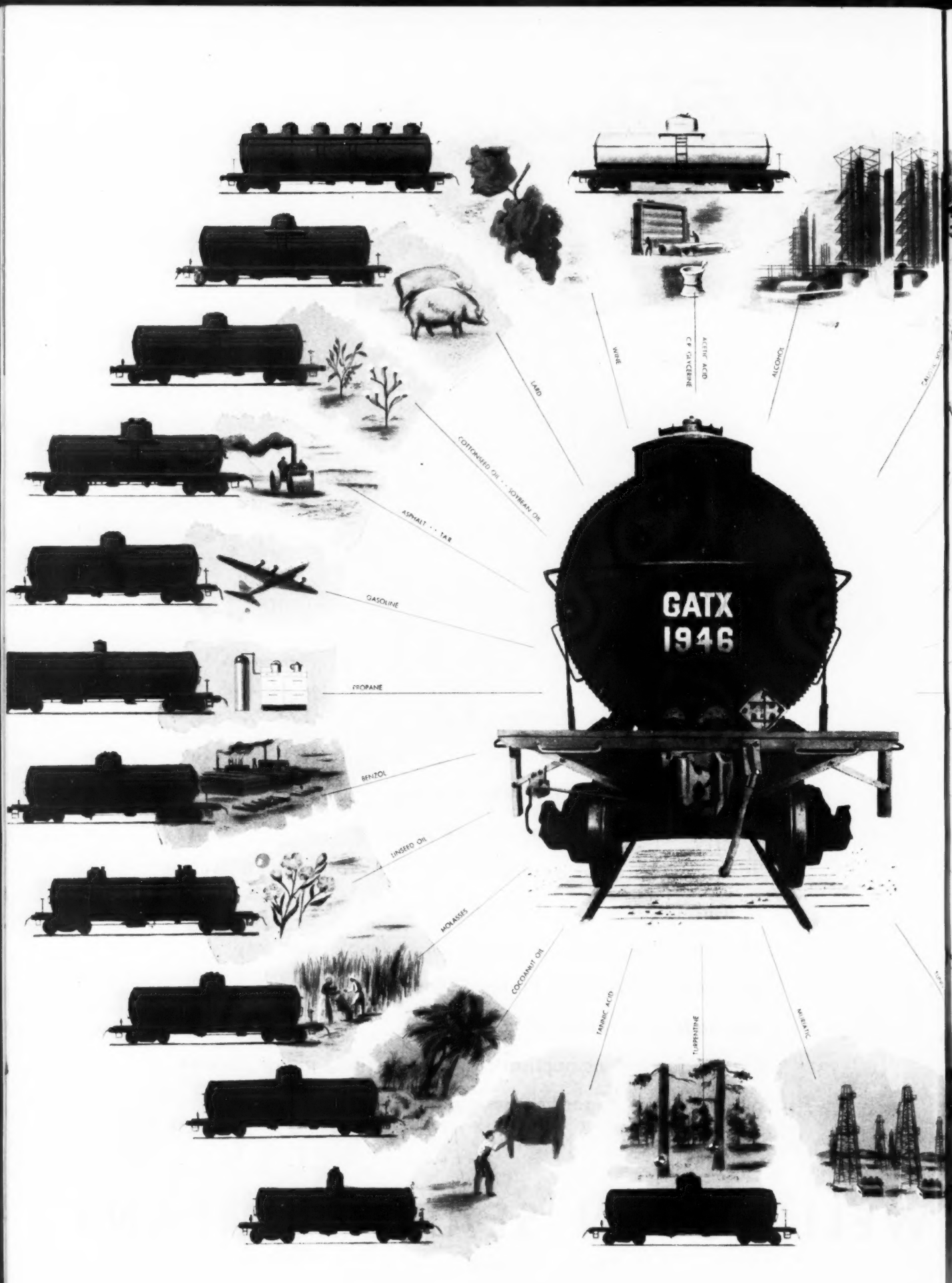
SHIPPERS! Your product can be seriously damaged by rust, corrosion, or mildew . . . because of "in-the-package" moisture. Avoid such damage. Include Jay Cee Silica Gel, the ideal drying agent, in the packages with your product.

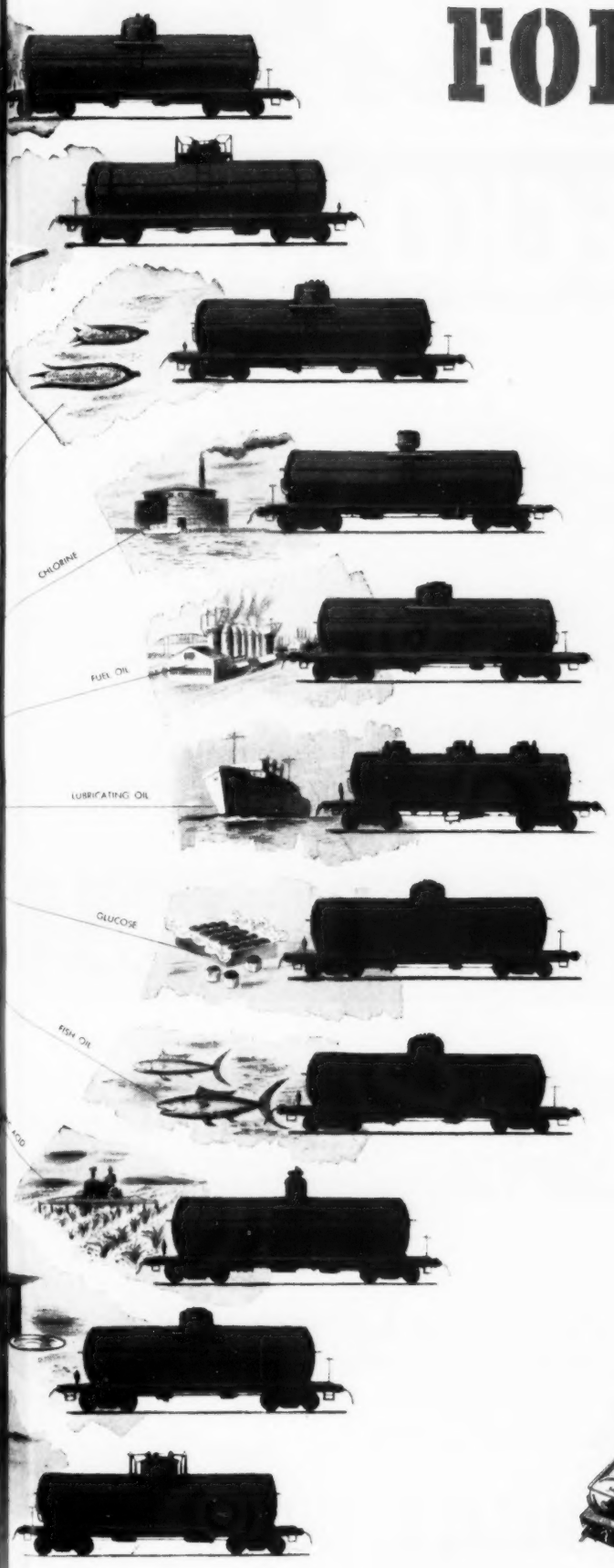
Your container may be sealed "tight as a drum" against outside moisture. Yet, the vapor within can cause untold harm. Particularly, a slight drop in temperature can release dangerous moisture.

Jay Cee Silica Gel keeps the air in the package dry . . . adsorbs the vapor . . . prevents moisture damage. Jay Cee Silica Gel is a crystalline substance resembling rock salt in general appearance . . . chemically inert. Has amazing power to take up moisture without its particles changing in size or shape. Packed in 1, 2, 4, 8 oz. and 1 and 5 lb. bags. Used widely with shipments of metal parts, precision instruments, electronic equipment, dehydrated foods, fabrics, and chemicals.

JAY CEE SILICA GEL

JOLIET CHEMICALS, LTD.
104 INDUSTRY AVENUE
JOLIET, ILLINOIS


GATX
1946
WINE
ACETIC ACID
C.P. GLYCERINE
ALCOHOL
LARD
COTTONSEED OIL - - SOYBEAN OIL
ASPHALT - - TAR
GASOLINE
PROPANE
BENZOL
LINSEED OIL
MOLASSES
COCOANUT OIL
TANNIC ACID
TURPENTINE
MURIATIC



FOR RENT

**37,000 Specialized Tank Cars—
207 Types—For Swift, Sure, Economical
Transportation of Liquids in Bulk**

•

GATX tank cars—207 types from 4,000 to 12,500 gallon capacities—haul an almost infinite variety of liquids: from propane to port wine to pine tar.

•

Strategically located offices, plants and repair shops throughout the nation give General American the unique ability to provide shippers precisely the kind of tank cars they want, *when* they want them, *where* they want them.

•

These tank cars are for rent. So, if the cargo is bulk liquid and the problem safe, fast, economical transportation—count on General American.

•

Take your tank car problems to our nearest office

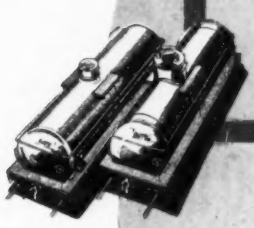
•

GENERAL AMERICAN TRANSPORTATION
CORPORATION

General Offices: 135 South LaSalle Street, Chicago 3, Illinois

DISTRICT OFFICES:

New York	Los Angeles	New Orleans
St. Louis	Dallas	Tulsa
Buffalo	Houston	Cleveland
Seattle		Pittsburgh



GENERAL AMERICAN TRANSPORTATION
CORPORATION
CHICAGO

Davison silica gel may be the answer to your problem

Davison has either originated, or participated in, practically all of the research and development involving silica gel and its uses since the chemical emerged from the laboratory stage over a quarter of a century ago.

CHEMICAL PROPERTIES

Silica gel—the activated gel of silicic acid—is an amorphous form of silicon dioxide. Its chemical inertness is comparable to that of quartz . . . the common acids do not react with it or lower its efficiency.

Clear and colorless, but actually composed of almost infinitely small pores, Davison silica gel has an interior surface area of more than 50,000 square feet to the cubic inch.

- The action of silica gel in adsorbing vapors is purely physical and there is no change in size or shape of the particles as it becomes saturated. No corrosive or injurious compounds are given off as is usually the case when chemical absorption takes place.

PHYSICAL PROPERTIES

Hard and rugged . . . about number 5 in Moh's Mineralogical Scale . . . not abrasive and does not erode or dust in service.

Davison silica gel is available in several sizes from 3 to 8 mesh to an impalpable air floated powder (through 325 mesh).

The coarser grades of Davison silica gel weigh about 42½ pounds per cubic foot, while the "powder" weighs from 25 to 30 pounds per cubic foot.

Davison silica gel possesses the property of adsorbing large quantities of liquids and vapors. It can be repeatedly reactivated by heating to comparatively low temperatures—between 300° and 350° F.

Davison silica gel plays an important role in catalytic chemistry and in processes having to do with the drying and purification of gases, as well as in many other fields. Consult Davison regarding problems where surface area and intense adsorptive powers are involved.

THE DAVISON CHEMICAL CORPORATION

BALTIMORE 3, MARYLAND

Progress through Chemistry

Nuchar ~ ~ ~ *Maestro in the Art of Purification*

The French have a word for it — "Savoir Faire" — which means, literally, "to know how to do". And NUCHAR has the word for the proper use of activated carbon in purification processes. It's "KNOW HOW".

When you use NUCHAR activated carbon in your process without this "KNOW HOW", you may not get the best possible results. There was the beeswax user who needed a cleaner burning wax for candles. Nuchar technicians recommended a specific grade with superior decolorizing power which also removed certain gums and resins. It also made it possible to use a smaller size wick and provided a cleaner and faster burning candle.

There was the beer with the faulty flavor that was corrected with only 0.25% of activated carbon added to the cooler. There was the water supply that smelled because NUCHAR was added at the wrong point in the process. And NUCHAR even removed the "slop" odor from young whiskey making it a best-seller.

Whether it is beer or beeswax — water or whiskey — Nuchar technicians have the "Know How" that will show you the proper use of activated carbon in your process. A number of standard qualities of Nuchar are adaptable to a wide range of conditions and special qualities are available for specific problems. Write today for complete information and samples for your purification problems.

Nuchar Activated Carbons ★ Abietic Acid ★ Snow Top Precipitated Calcium Carbonate ★ Liquid Caustic Soda ★ Chlorine Indulin (Lignin) ★ Liqro Crude Tall Oil ★ Indusoil Distilled Tall Oil ★ Tall Oil Pitch ★ Sulphate Wood Turpentine

NUCHAR

INDUSTRIAL CHEMICAL SALES

DIVISION WEST VIRGINIA PULP AND PAPER COMPANY

230 PARK AVENUE, NEW YORK 17, N.Y. — 35 E. WACKER DRIVE, CHICAGO 1, ILLINOIS — 748 PUBLIC LEDGER BLDG., PHILADELPHIA 6, PA. — 844 LEADER BLDG., CLEVELAND 14, OHIO

IN 1946—

LOOK TO COLUMBIA'S TECHNICAL STAFF FOR

New Products and Services

DURING THIS YEAR, Columbia—through its Technical Staff comprised of research, development and marketing departments—will make available a number of new products and services such as those listed at the right. These represent the utilization of Columbia's natural position and advantages in the production and handling of alkalies and related products on a vast industrial scale. Each will afford excellent potentials in a variety of fields.

Watch for Announcements

If any of these brief descriptions are of interest to you, watch for subsequent announcements and data to be published in these pages by Columbia's Technical Staff.

. . . a new unit process service based on production experience gained in tonnage handling of a gaseous raw material for organic syntheses.

. . . a new industrial source of an intermediate useful in chlorination, dehydration and esterification processes.

. . . the first in a new series of inorganic esters.

. . . new bases for the production or modification of condensation type resins.

. . . a white, crystalline, non-hygroscopic raw material with suggested possible use in explosives and surface coatings.

. . . intermediates for introducing cyclic ester linkages in solvents, plasticizers, resins, etc.

COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY · COLUMBIA CHEMICAL DIVISION

GRANT BUILDING, PITTSBURGH 19, PENNSYLVANIA · Chicago · Boston · St. Louis · Pittsburgh

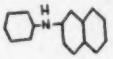
New York · Cincinnati · Cleveland · Philadelphia · Minneapolis · Charlotte · San Francisco

COLUMBIA ESSENTIAL INDUSTRIAL CHEMICALS

Soda Ash · Caustic Soda · Liquid Chlorine · Sodium Bicarbonate · Pittchlor · Silene EF (Hydrated Calcium Silicate) · Calcium Chloride · Soda Briquettes · Modified Sodas · Caustic Ash · Phosflake · Calcene T (Precipitated Calcium Carbonate)

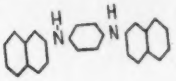
B. F. Goodrich Chemical Company

has available for sale these organic chemicals



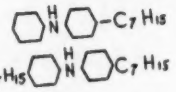
Phenyl B Naphthyl Amine

Distilled—Available in commercial quantities
M. P. 107°
Purity 99.5%
Commercial—Available in commercial quantities
M. P. 106°
Purity 98.0%



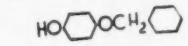
Di B Naphthyl p Phenylene Diamine

Available in commercial quantities
M. P. 230° C
Purity 98%



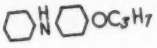
Mixed Mono-and Diheptyl Diphenyl Amines

Available in commercial quantities
Distillation range—145-245
(3.0 mm)
Purity 98%



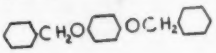
Monobenzyl Ether of Hydroquinone

Available in commercial quantities
M. P. 113°
Purity 90%



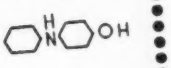
Isopropoxy Diphenyl Amine

Available in commercial quantities
M. P. 78°
Purity 92% min.



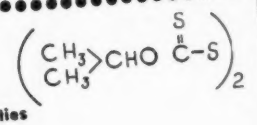
Dibenzyl Ether of Hydroquinone

Available in Pilot Plant quantities
M. P. 119°
Purity 85%



p Hydroxy Diphenyl Amine

Available in commercial quantities
M. P. 150
Purity 92%

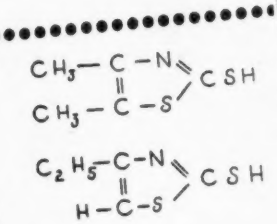


Di Isopropyl Dixanthogen

Available in commercial quantities
M. P. 52°
Purity 98%

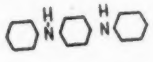
N-Nitroso Diphenyl Amine

Available in commercial quantities
M. P. 62°
Purity 97%



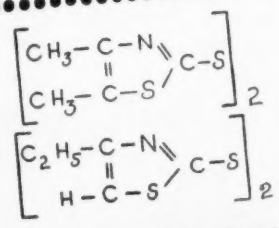
Mixed Ethyl and Dimethyl Mercaptothiazoles

Available in commercial quantities
M. P. 136-153°
Purity Approximately 85% dimethyl and 15% ethyl mercaptothiazoles



Diphenyl p Phenylene Diamine

Available in commercial quantities
M. P. 144°
Purity 92%

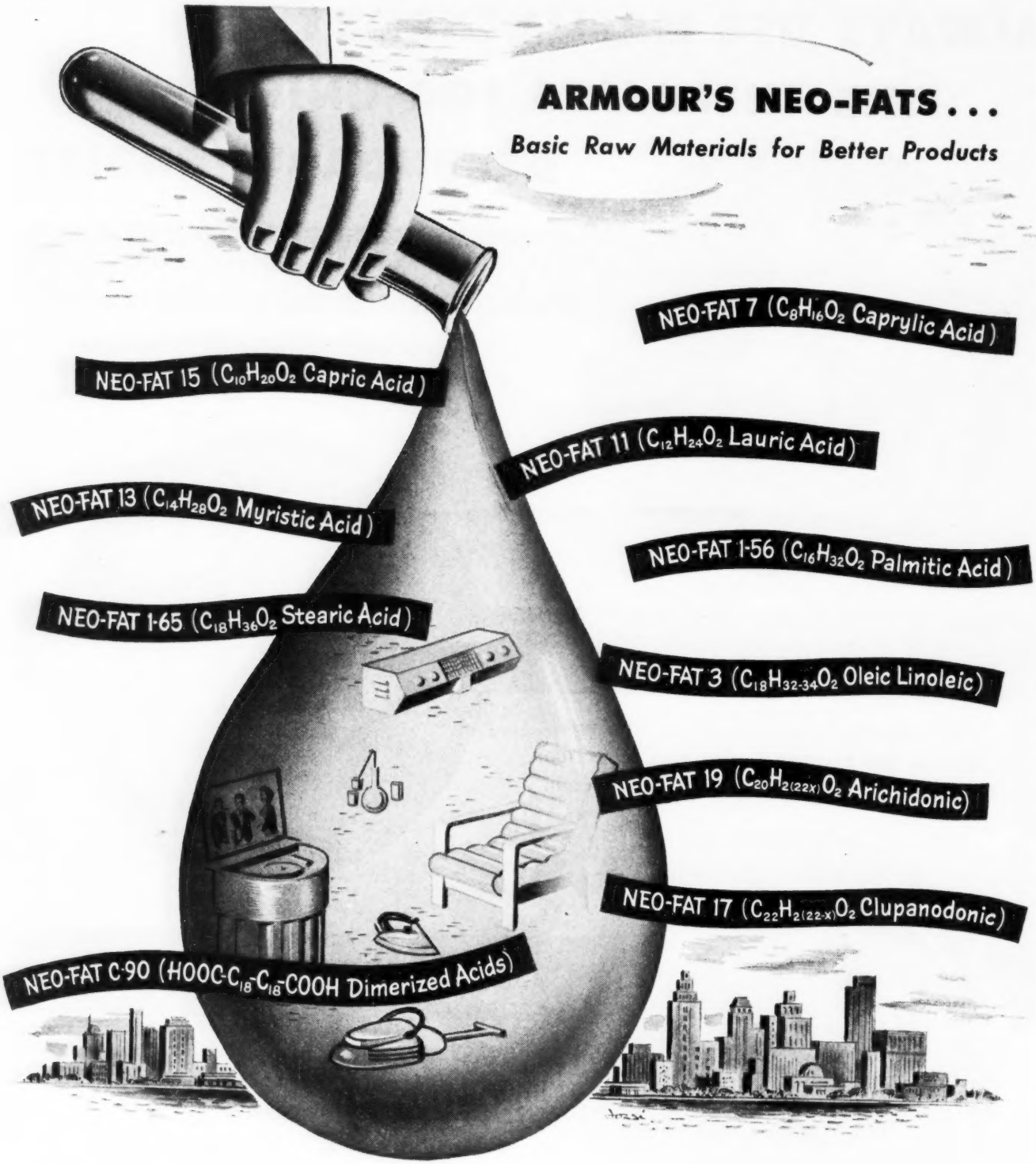


Mixed Aliphatic Thiazyl Disulfides

Available in commercial quantities
Liquid

For additional information please write B. F. Goodrich Chemical Company, Department CD-1, Rose Building, Cleveland 15, Ohio.

B. F. Goodrich Chemical Company A DIVISION OF THE B F GOODRICH COMPANY



You'll find these Neo-Fat Pure Fatty Acids—and the nitriles, amines, amides, acid chlorides and synthetic oils produced from them—invaluable ingredients for improving your products...present and future.

Always pure and uniform, they are giving excellent results today in such diverse applications as protective coatings...rubber products...alkyd resins . . . wax compounds . . . metallic soaps and driers . . . insecticides . . . lubricants . . . flotation recovery, to name only a few.

Whatever your products, whatever your plans, it will pay you to consider the Neo-Fats and their derivatives. Write us today for complete details on the entire series.

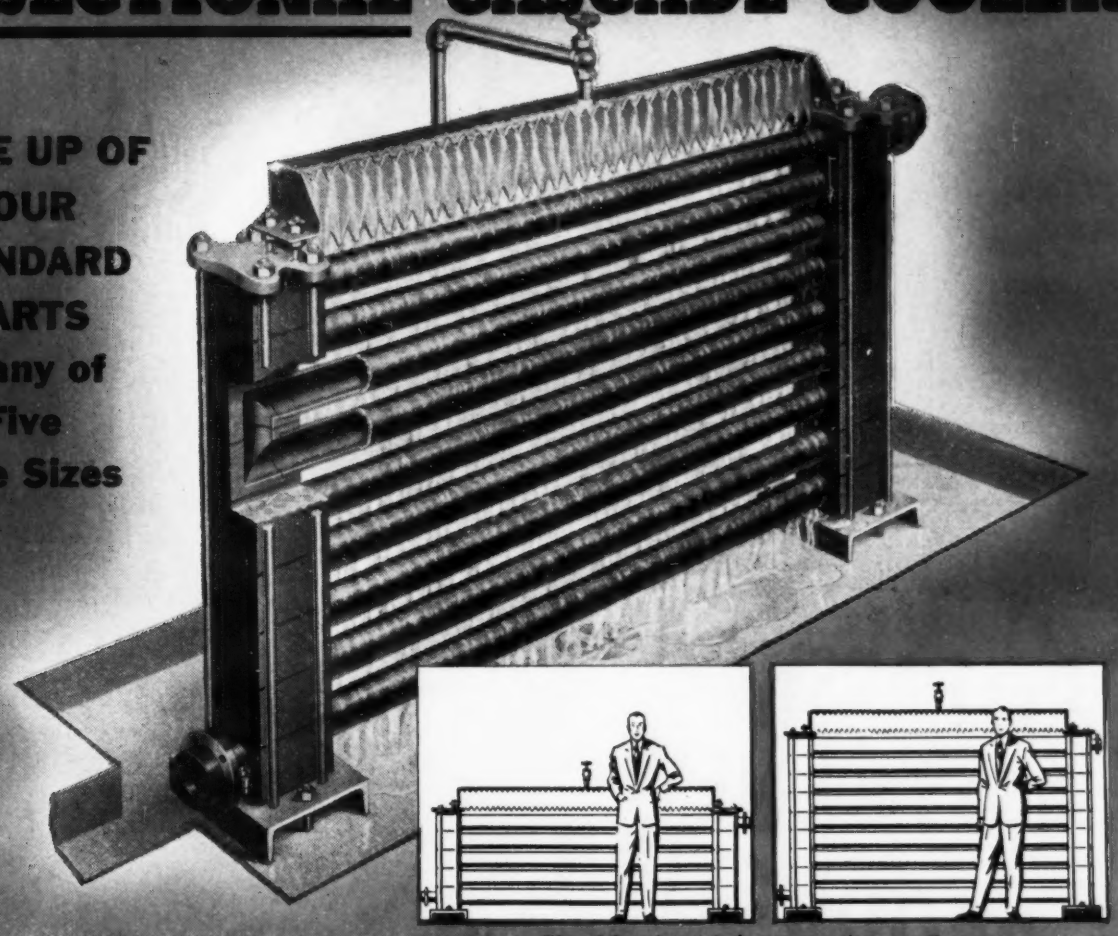
ARMOUR CHEMICAL DIVISION
ARMOUR AND COMPANY
1355 WEST 31ST STREET • CHICAGO 9, ILLINOIS

Announcing

THE NEW KARBATE
TRADE MARK

SECTIONAL CASCADE COOLER

MADE UP OF FOUR STANDARD PARTS In any of Five Pipe Sizes



It's quick and easy to increase or decrease the capacity of your "Karbate" Sectional Cascade Cooler.

HERE'S a cascade cooler that you can order from stock to suit your particular process needs. Its interchangeable sections make construction—and additions or subtractions—a quick and easy matter.

Nine-foot-long, single-pipe "Karbate" cooler sections are stacked to form a series flow vertical bank. The compact joint construction makes possible close pipe spacing, and ends the need for redistribution baffles. Also, no external supports are necessary. Maximum effective external areas: about 120 sq. feet in all five pipe sizes in the maximum recommended cooler height of six feet. Gaskets are of synthetic rubber or of asbestos composition, as desired. A standard steel water distributor is mounted atop the steel tie rod assemblies.

Has many uses! Made of "Karbate" impervious graphite material, the Sectional Cascade Cooler is ideal for efficient cooling of almost all acids, caustics, and organic solvents at pressures up to 75 lbs. p.s.i., and temperatures up to 338° F. With minor changes in applying the cooling water, gases well above this temperature can be handled.

For engineering details on this Sectional "Karbate" Cascade Cooler, ask our nearest Division Office for a copy of Bulletin M-8807.

The words "National" and "Karbate" are registered trade-marks of National Carbon Company, Inc.

NATIONAL CARBON COMPANY, INC.

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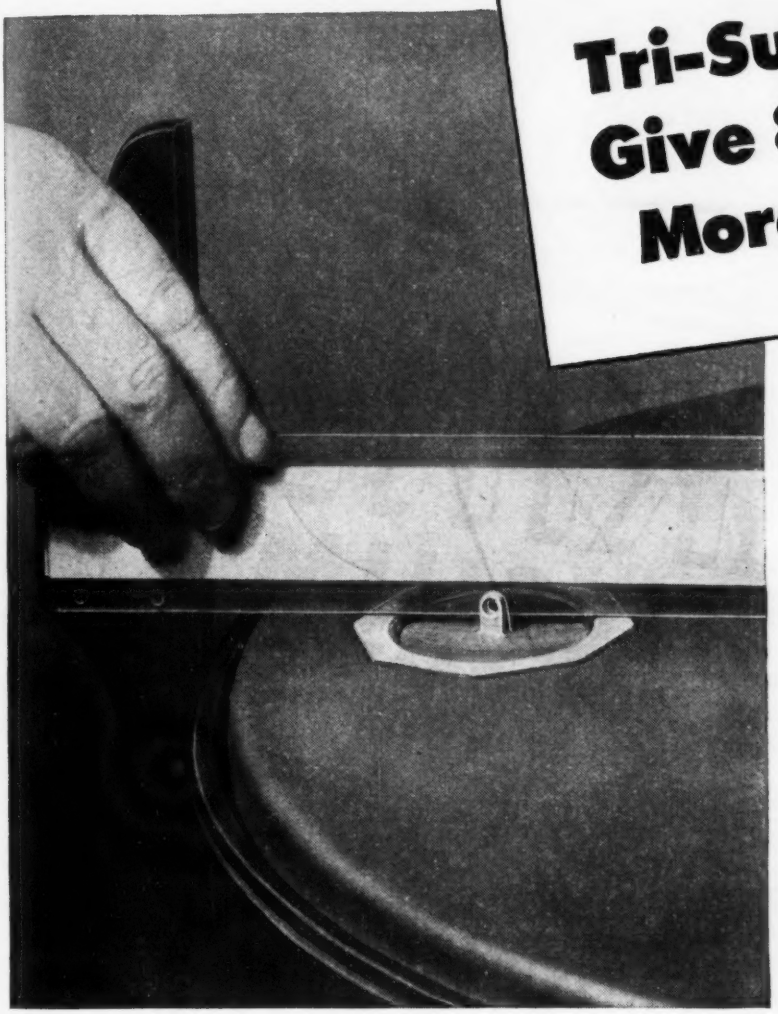
Tri-Sure Closures Give 8.34 Ounces More Per Drum



Photograph of T-square placed across the closure fitted in the drum clearly shows the flush fitting of the flange which allows complete drainage.

ONE of the major oil companies recently made exhaustive tests to determine the efficiency of drum closures from the standpoint of drainage.

Tri-Sure and other types of closures were tested in 55 gallon drums under identical conditions. After draining the contents (Lube Oil) from the drums only 3.38 fluid ounces remained in those fitted with Tri-Sure Closures, the average contents remaining in all other drums being 11.72 fluid ozs.

Benefit to users of Tri-Sure fitted drums — 8.34 fluid ounces — the equivalent of more than 600 gallons in every 10,000 drum shipment.

In addition, drums sealed with Tri-Sure Closures assure protection from leakage, seepage, tampering, substitution and breathing.

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TRI-SURE PRODUCTS LIMITED, ST. CATHARINES, ONTARIO, CANADA

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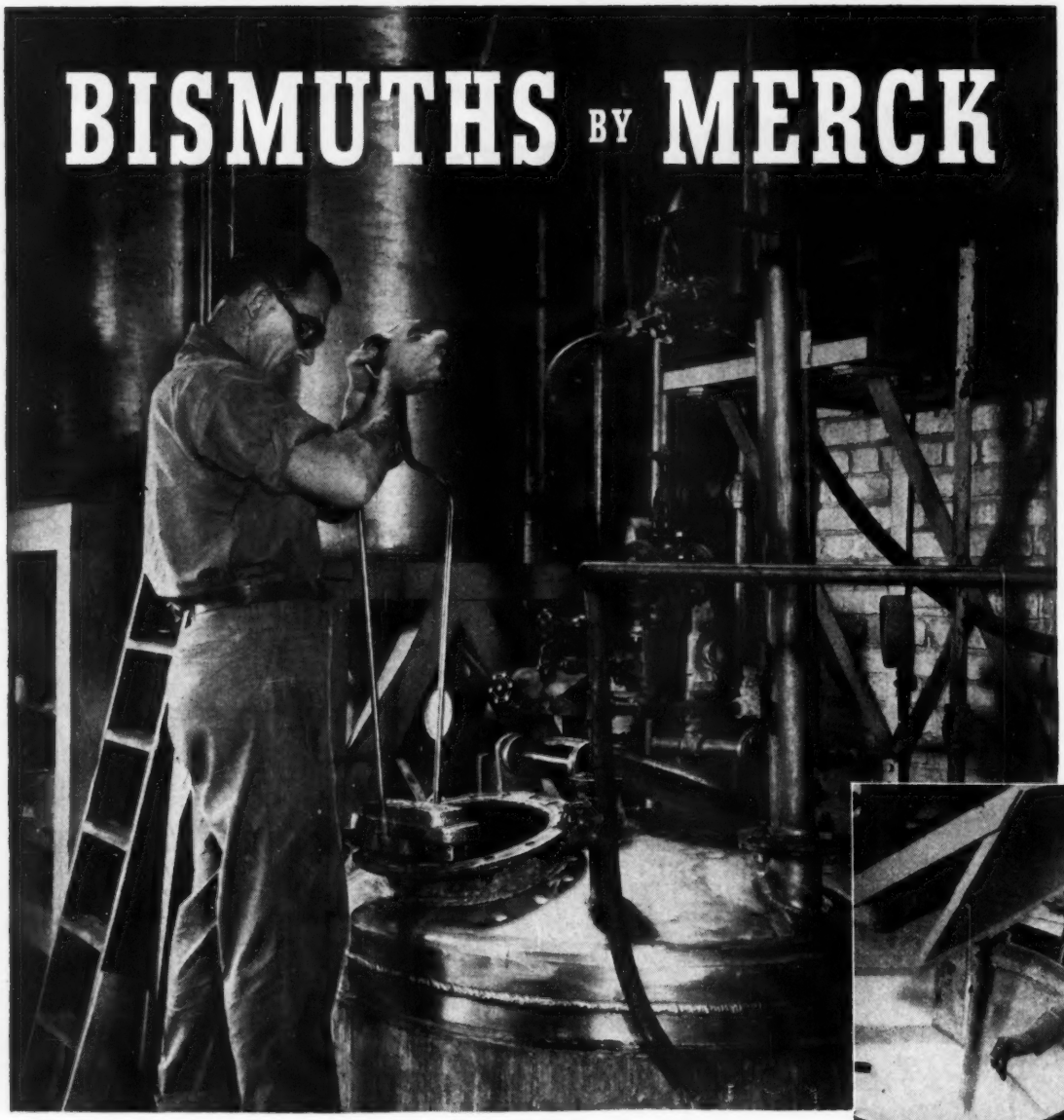

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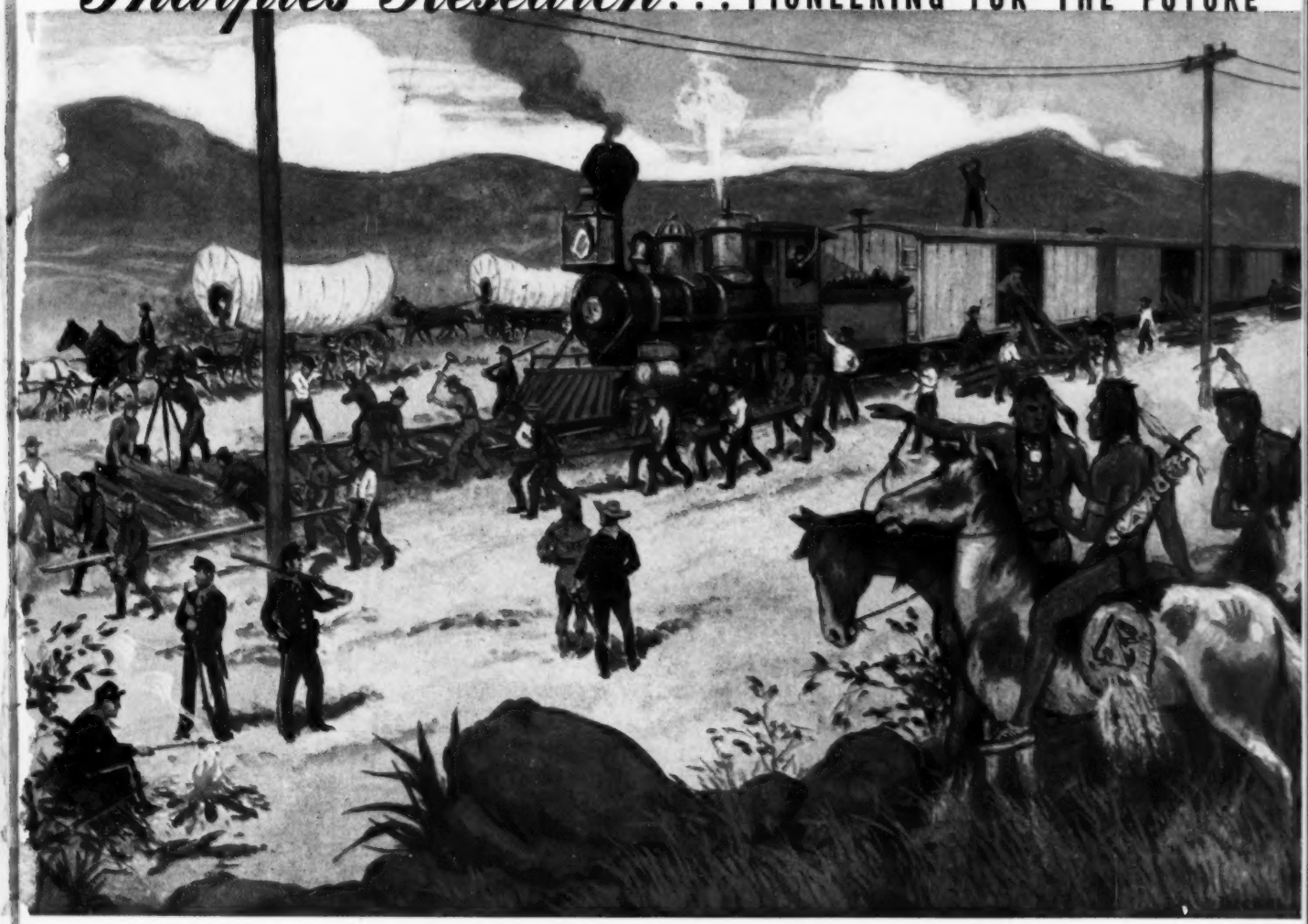

The first transcontinental railroad, overcoming great natural and industrial difficulties, was completed May 10, 1869, thereby linking the East with the West.

THE completion of the first transcontinental railroad marked an important milestone in transportation history by linking the established East with the undeveloped West and opening new areas rich in opportunity. Similarly, products of constant research in chemistry serve as links to join disconnected ends and complete roads leading to important developments of the future.

The amines described below have been known to chemists for some time but many of their possible applications have not been fully explored. They are versatile compounds, water white in color and all are of at least 95 per cent purity. Their chemical properties suggest possibilities for applications as intermediates for synthesis of pharmaceuticals and dyestuffs—in preparation of emulsifying agents, textile assistants and insecticides. Many other uses may be suggested by their properties and Sharples will be glad to submit samples for evaluation upon receipt of your request on company letterhead.

At present, only limited quantities are available, but commercial production can be undertaken when conditions permit.

NEW SHARPLES AMINES

Name	Formula	Molecular Weight (Calcd.)	Boiling Range ° C.	Sp. Gr. at 20/20° C.	Refractive Index at 20° C.	Flash Point ° F.
sec-Butylamine	$CH_3CH_2CH(NH_2)CH_3$	73.1	63-68	0.725	1.395	<20
Isobutylamine	$(CH_3)_2CHCH_2NH_2$	73.1	66-69	0.733	1.398	<20
Di-sec-butylamine	$(CH_3CH_2CHCH_3)_2NH$	129.2	132-135	0.754	1.412	75
Diisobutylamine	$[(CH_3)_2CHCH_2]_2NH$	129.2	136-140	0.745	1.410	85

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PENTAPHEN* (p-tert-AMYL PHENOL)
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PENTALENES* (AMYL NAPHTHALENES)

AMYLAMINE
DIAMYLAMINE
TRIAMYLAMINE
ETHYLAMINE
DIETHYLAMINE
TRIETHYLAMINE
BUTYLAMINE
DIBUTYLAMINE
TRIBUTYLAMINE

DIETHYLAMINOETHANOL
ETHYL MONOETHANOLAMINE
ETHYL DIETHANOLAMINE
MIXED ETHYL ETHANOLAMINES
DIBUTYLAMINOETHANOL
BUTYL MONOETHANOLAMINE
BUTYL DIETHANOLAMINE
MIXED BUTYL ETHANOLAMINES
TETRAETHYLTHIURAM DISULFIDE
TETRAETHYLTHIURAM MONOSULFIDE
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ZINC DIETHYLDITHIOCARBAMATE
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NO. 4 OF A SERIES OF DIGEST REPORTS FROM CYANAMID RESEARCH LABORATORIES

AN OPPORTUNITY FOR SYNTHESIS THROUGH USE OF TIMELY CHEMICAL DEVELOPMENTS

AERO* GUANYLUREA COMPOUNDS

$$H_2N\text{-}C(=NH)\text{-}NH\text{-}C(=O)\text{-}NH_2$$

Guanylurea, dicyandiamidine or carbamyl guanidine, has been a laboratory curiosity since the early part of the last century. It is currently available in commercial quantities in the form of AERO Guanylurea Sulphate, $(NH_2C(:NH)NHCONH_2)_2.H_2SO_4.2H_2O$.

The water of hydration can be driven off by heating at elevated temperatures. Free guanylurea, although not commercially available at present, can be readily prepared from the sulphate in water, alcohol, or liquid ammonia solution.

Guanylurea salts of organic acids may be used as latent catalysts for amino-aldehyde type resins, wetting agents, thread lubricants, soaps for incorporation into mineral lubricating oils and greases, and for the preparation of guanides.

Guanylurea sulphate reacts with primary amines to give symmetrical di-substituted ureas. Alkylol and alkoxyalkylol guanylurea derivatives react with ice-color diazo compounds to give stabilized diazo products.

AERO GUANYLUREA SULPHATE is a white powder, approximately 97% pure, having a molecular weight of 338 and is soluble in water to the extent of 6 grams per 100 cc. at 15°C., and 27 grams per 100 cc. at 70°C.

We shall be pleased to discuss with you the preparation of other guanylurea compounds, if desired in commercial quantities. You are urged to write to the Synthetic Organic Chemicals Department of American Cyanamid & Chemical Corporation for further information and a sample of AERO Guanylurea Sulphate.

A Partial List of the Compounds that can be made from AERO GUANYLUREA SULPHATE

- Guanylurea oxalate
- Guanylurea anthranilate
- Guanylurea formate
- Guanylurea benzoate
- Guanylurea phthalate
- Guanylurea stearate
- Guanylurea sulfonic acid
- Guanylurea 2-ethylhexanoate
- Guanylurea naphthenates (mixed)
- Guanylurea 2-phenylcinchoninate
- Acetylguanylurea
- Nitroguanylurea

OTHER CYANAMID ORGANIC NITROGEN COMPOUNDS

Acrylonitrile $CH_2=CHCN$
Ethylene Cyanohydrin $HO-CH_2\ CH_2-CN$
Guanidine Compounds $H_2NC(=NH)NH_2$

*Reg. U. S. Pat. Off.

American CYANAMID & Chemical Corporation

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HEADQUARTERS FOR NITROGEN CHEMICALS

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4 Hooker Metallic Chlorides of High Purity...

These four Hooker Chemicals are all classified as metallic chlorides, but they can't be grouped under one use or industry heading. Each one, a versatile tool for chemists, may be used in many different processes and in many different reactions. Whether you are looking for catalysts or highly active reagents; whether you are in the petroleum, the textile, pharmaceutical or even water supply field, it will pay you to see if any of these chemicals can help you. If the brief descriptions of these chemicals, their properties and uses whets your curiosity for more information, Technical Data sheets supplementing this data and including Hooker specifications of purity will be sent you when requested on your letterhead.

HOOKER RESEARCH *Presents*

LAURYL PYRIDINIUM CHLORIDE

$C_5H_5N(C_{12.6}H_{26.2})Cl$

This recently developed product of the Hooker Laboratories has already made its mark in many different applications. The textile field has put Lauryl Pyridinium Chloride to work cleaning textile fibers, in water soluble lubricants, wetting agent in processing, color modifier in dyeing and as a cationic detergent, dispersing and wetting agent in rayon manufacture (Ref. U. S. Pat. No. 2,125,031). Like other quaternary ammonium compounds this chemical has good germicidal properties and is quite potent against both Gram-positive and Gram-negative micro-organisms. For the pharmaceutical industry, this chemical has many interesting possibilities in the preparation of antiseptic soaps, germicides, disinfectants, fungicides, insecticides, etc.

Among other suggested uses for this compound are the manufacture of foam resistant compounds, leveling agent in polishes and waxes; lubricant for plastic molds, additive to water to increase solubility of many organic compounds. Technical Data Sheet 745 gives physical and chemical characteristics and other information. A copy will be sent you on request.

Aluminum Chloride, Anhydrous, $AlCl_3$ is principally used as a catalyst for Friedel-Crafts synthesis, polymerization, isomerization, halogenation. These reactions are important in the production of high octane gasoline, lubricants, synthetic rubber, dyes, pharmaceuticals, photographic chemicals, etc. Hooker Aluminum Chloride is a grayish crystalline solid which fumes in moist air. It is available in three sizes. It is a particularly pure product containing a minimum by weight of 99% aluminum chloride and a maximum iron content of .05%.

Antimony Trichloride, Anhydrous, $SbCl_3$ is used in the petroleum industry as a catalyst (with $AlCl_3$) to convert normal butane to isobutane and in various hydrocarbon oil treatments. It is also used as a catalyst in organic synthesis; in the manufacture of dyes and pharmaceuticals; preparation of antimony salts; as a mordant in calico printing; in antimony plating; in bronzing iron and other metal treating processes. In a muriatic acid solution it forms a coating of antimony on iron retarding corrosion. Hooker Antimony Trichloride, Anhydrous, is a yellowish crystalline solid of 99% minimum purity. Iron and arsenic are present in a maximum amount of 1% and it is entirely free from lead.

Arsenic Trichloride, Anhydrous, $AsCl_3$ is used in the manufacture of synthetic organic chemicals containing arsenic for insecticides, war and police gases. The Hooker product is a clear, colorless to pale yellow liquid, containing 99.5% minimum, arsenic trichloride.

Ferric Chloride Solution, $FeCl_3$ is used in sewage treatment, in photo engraving, for photogravure and heliogravure, as mordant in dyeing and printing textiles, for the manufacture of other iron salts, paint pigments, iron pharmaceuticals, as an oxidizing agent in making dyes, as a general disinfectant. It is a dark orange-red syrupy liquid with a Ferric Chloride content of 40 to 45% and a ferrous chloride content of .20% maximum.

Help from Hooker Technical Staff

An important function of the Hooker Technical Staff is to cooperate with users and prospective users of Hooker Chemicals. On any of your problems involving chemicals, let our Technical Staff help you in determining where Hooker Chemicals can provide the answer.

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8351

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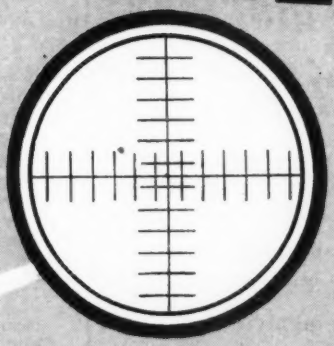

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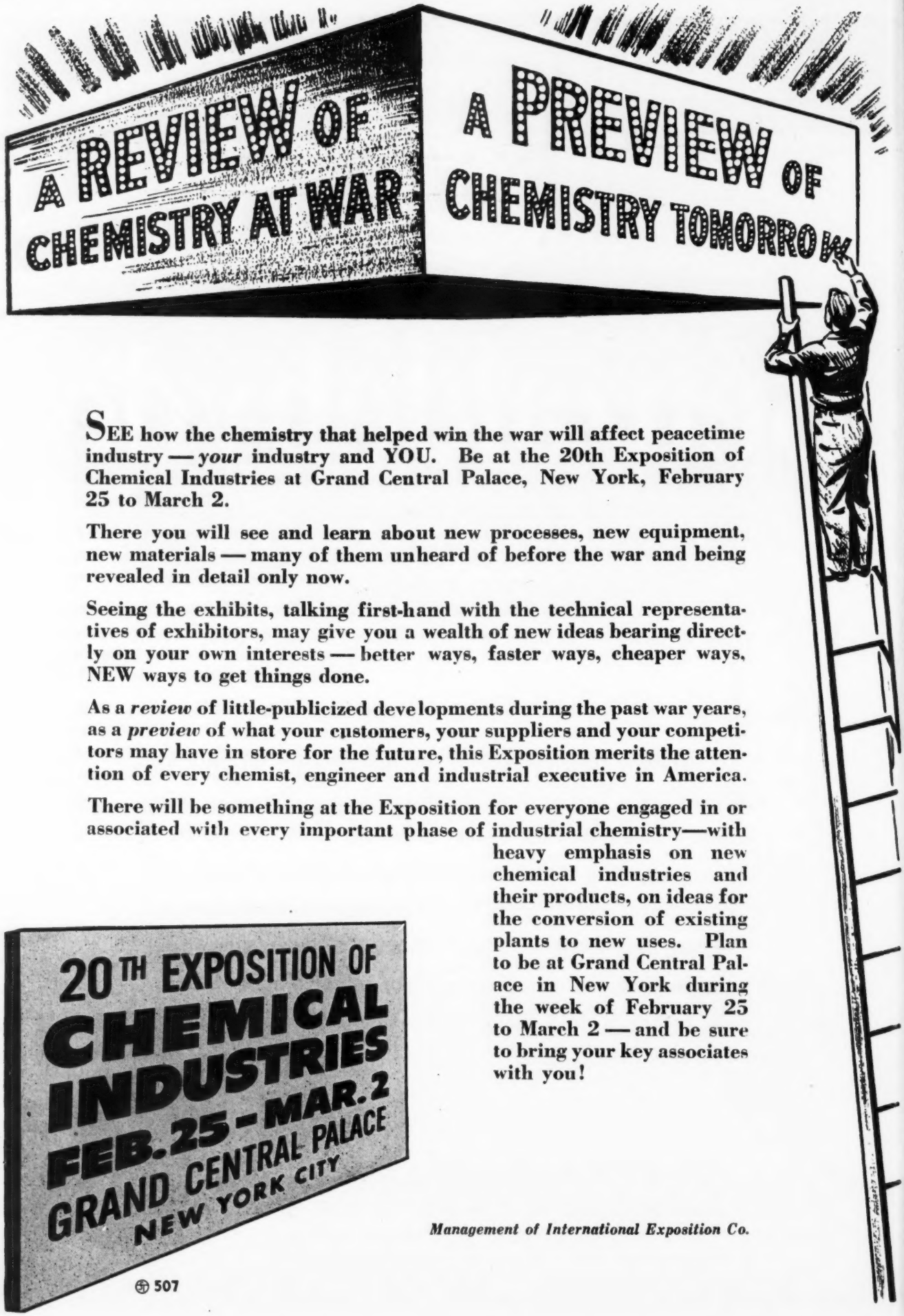


SEE how the chemistry that helped win the war will affect peacetime industry — *your* industry and YOU. Be at the 20th Exposition of Chemical Industries at Grand Central Palace, New York, February 25 to March 2.

There you will see and learn about new processes, new equipment, new materials — many of them unheard of before the war and being revealed in detail only now.

Seeing the exhibits, talking first-hand with the technical representatives of exhibitors, may give you a wealth of new ideas bearing directly on your own interests — better ways, faster ways, cheaper ways, NEW ways to get things done.

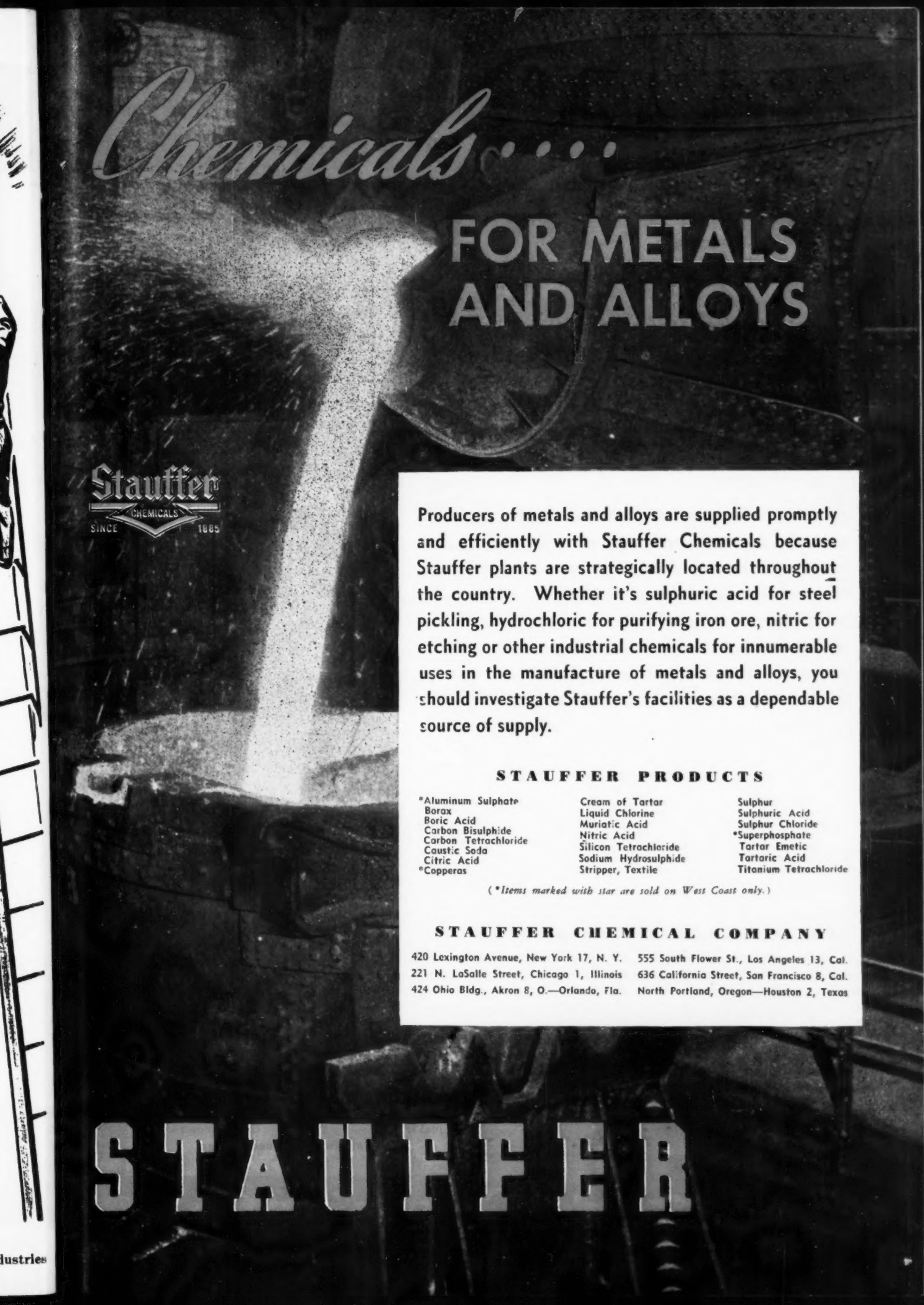
As a *review* of little-publicized developments during the past war years, as a *preview* of what your customers, your suppliers and your competitors may have in store for the future, this Exposition merits the attention of every chemist, engineer and industrial executive in America.

There will be something at the Exposition for everyone engaged in or associated with every important phase of industrial chemistry—with heavy emphasis on new chemical industries and their products, on ideas for the conversion of existing plants to new uses. Plan to be at Grand Central Palace in New York during the week of February 25 to March 2 — and be sure to bring your key associates with you!

20TH EXPOSITION OF CHEMICAL INDUSTRIES
FEB. 25 - MAR. 2
GRAND CENTRAL PALACE
NEW YORK CITY

⊕ 507

Management of International Exposition Co.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Producers of metals and alloys are supplied promptly and efficiently with Stauffer Chemicals because Stauffer plants are strategically located throughout the country. Whether it's sulphuric acid for steel pickling, hydrochloric for purifying iron ore, nitric for etching or other industrial chemicals for innumerable uses in the manufacture of metals and alloys, you should investigate Stauffer's facilities as a dependable source of supply.
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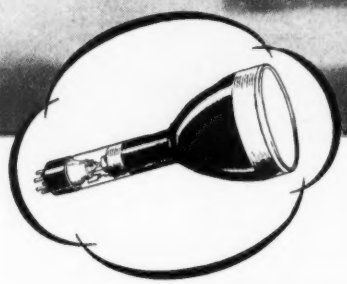
Chemical purity helps Radar give travelers a new measure of safety



Greater safety in the air and on the sea! Thanks to RADAR, travel companies are closer to this goal today than ever before.

Radar, the hush-hush word of war, is now performing peacetime duties — revealing obstacles at sea way beyond the lookout's range of vision — making blind flying through darkness, fog or storm comparatively safe.

Like radio, radar utilizes the flow of electrons from the filament to the plate of an electron tube. It employs many varieties of tubes, all of which are necessary for its proper functioning.

It is in the manufacture of such tubes that Baker's fine chemicals of exacting purity play an important role. For example, special radio chemicals having high electron-emitting properties are used as a coating for cathodes.

The electron tube has many uses, of which radar is but one. Tubes for your radio and television set—midget tubes for your walkie-talkie—all depend upon properly coated wire filaments and cathodes for high electron emission.

If you are a manufacturer of electron tubes, a Baker representative would welcome an opportunity of talking with you about radio chemical mixtures.

J. T. Baker Chemical Co., *Executive Offices and Plant:* Phillipsburg, N. J. *Branch Offices:* New York, Philadelphia, Boston and Chicago.

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MODERN DEVELOPMENTS OF GASKET RESEARCH

BELLOWSEAL...

Here is a unique gasket design developed in the Goetze Research Laboratory — Bellowseal, type U-B.

It is a Serrated Type Gasket that literally uses the pressure to be sealed in, to exert a proportionate sealing pressure on the flange faces.

This gasket consists of two discs of metal (Armco Iron, Low Carbon Steel, Monel or Stainless Steel) machined on their external faces with standard serrations and welded together around their outer periphery.

It combines the pressure and corrosion resistant qualities of all metal gaskets with the light bolting requirements of a softer sealing medium. Line pressure entering the interior of the gasket exerts expansion pressure in excess of the required sealing force.

It makes sense, doesn't it? Let the pressure to be sealed seal itself against leakage.

Ask to have your name added to the list of engineers receiving "The Gasket" — a series of technical bulletins containing original gasket data emanating from the Goetze Research Laboratory. Write on your company letterhead giving your position.

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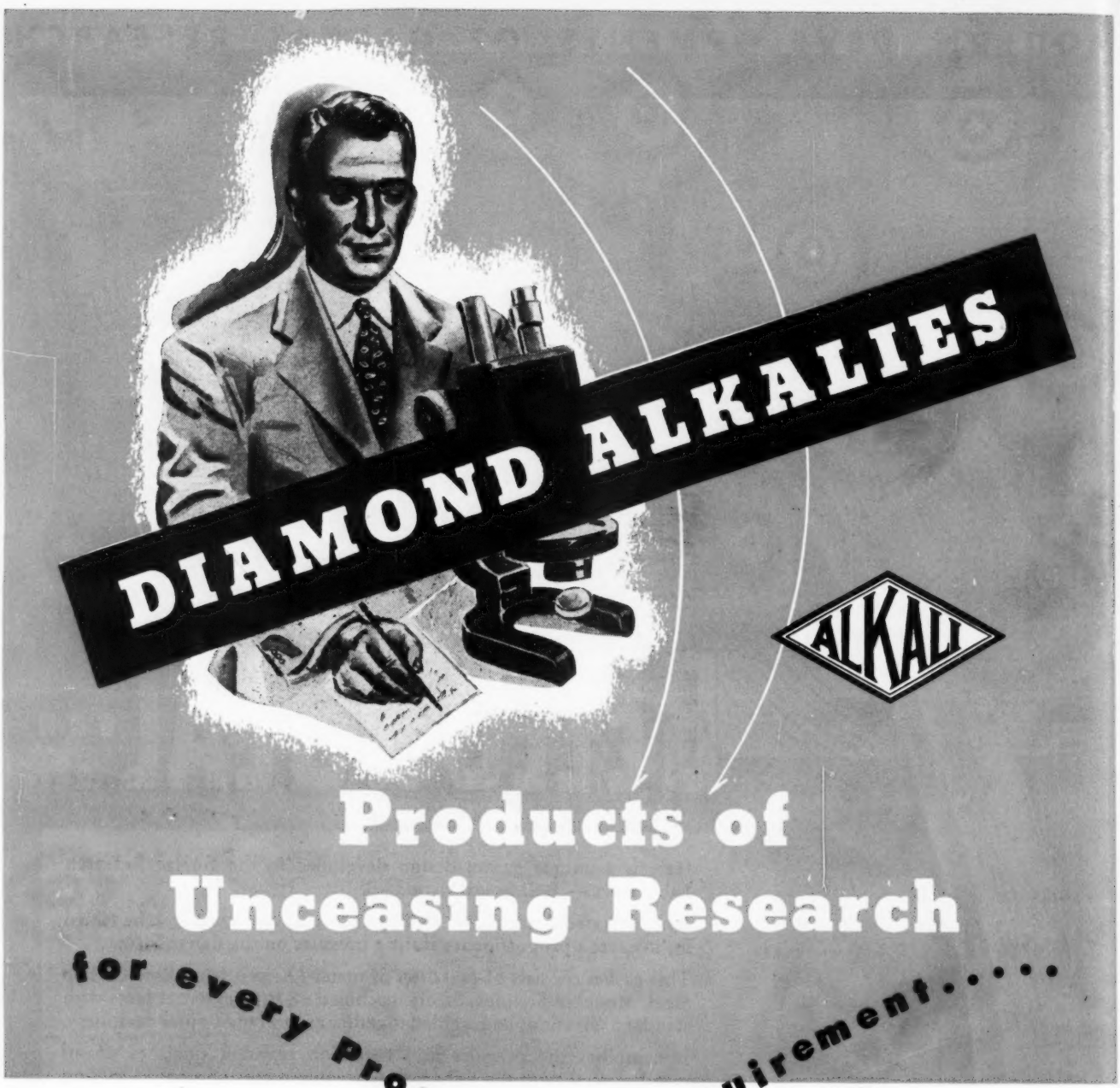

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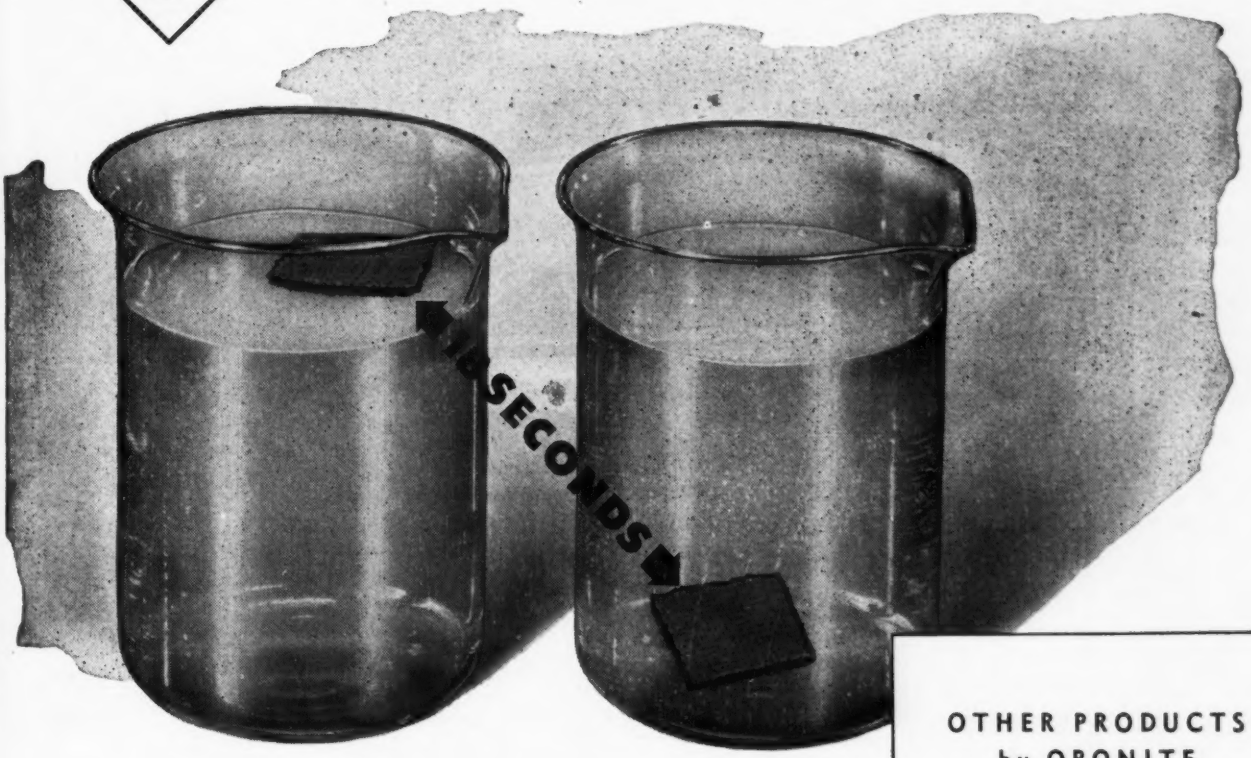

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Oronite Wetting Agent is a semi-fluid product, light brown in color, consisting of a controlled combination of petroleum sulfonates selected to give a high degree of both wetting and penetrating power. The wetting properties of this product are unaffected even by hard water and acid solutions. Oronite Wetting Agent is stable in acid solutions at high temperatures. Its excellent wetting-out characteristics make it inherently superior for a great many industrial uses.

TYPICAL TESTS OF ORONITE WETTING AGENT

Content by Weight:		ASTM Color (of 5% solution in distilled water)	1½
Sodium sulfonate (by difference)	67.50%	pH (of 1% solution in distilled water)	7
Water by distillation	32.00	Wetting Time (0.5% solution with cotton duck), seconds	18
Sodium sulphate	0.40		
Water insoluble	0.03		

Write for technical bulletin "Oronite Wetting Agent" which contains comprehensive data and information about the product and its many uses. Laboratory samples will be sent without cost or obligation.

OTHER PRODUCTS by ORONITE

Oronite Sodium Sulfonates, derived from petroleum sulfonic acids, are used as emulsifiers, emulsion breakers, anti-rust compounds, fat-splitting agents, metal cleaners; in oil emulsions, insecticides and sprays.

Sodium Sulfonates are now off allocation.

Oronite Naphthenic Acids are available in several grades for use in the manufacture of detergents, greases, water soluble oils and wood preservatives, and as flotation agents.

Oronite Aliphatic Acids have valuable froth control properties in the flotation treatment of many types of ores.

Oronite Phthalic Anhydride is now off government allocation and available for use in the many processes employing this acid.

1934

ORONITE CHEMICAL COMPANY

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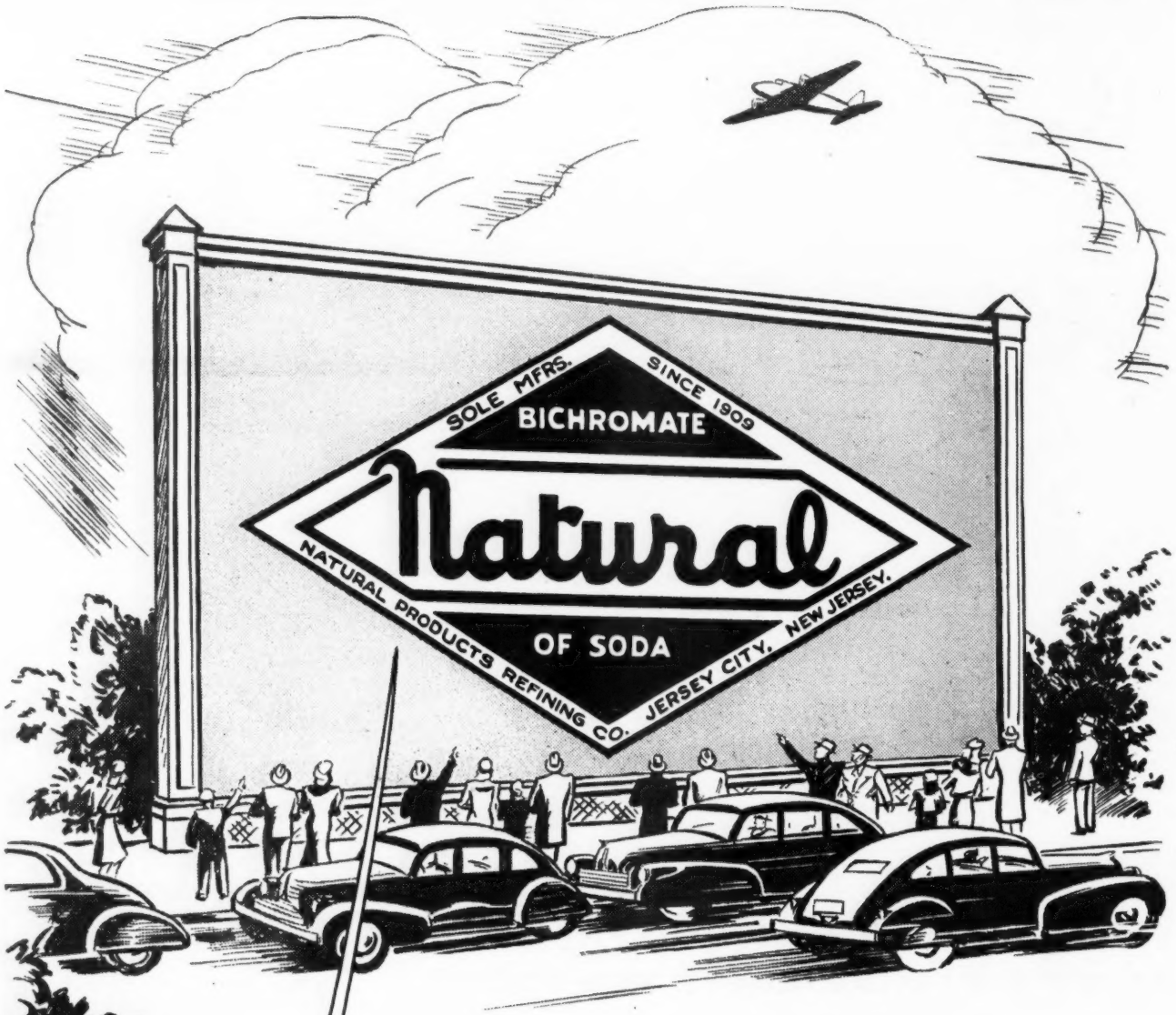

Sign of the Times!

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Crystals — Granular

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BICHROMATE OF POTASH

Crystals— Granular

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An Opportunity and A Challenge

by ROBERT L. TAYLOR, editor

THIS SHOULD BE A BIG YEAR and a good year for American chemical industry. It will not reach the production peaks of the last two, but in most respects it should be more pleasant.

One must go back for some time to find another new year that business in general has faced with better prospects or greater confidence. There are some black spots in the picture, to be sure, as there always are, and some of them are sizable enough to create some dissenters from the view taken here. But in relation to the bright areas the blemishes do not loom too large. For makers of chemicals, 1946 offers an opportunity—and a challenge.

The Opportunity: At no time before in history have the people of a nation harbored such an accumulation of material needs and, at the same time, the ability to pay for them. The backlog of consumer purchasing power in the United States today is tremendous. And with scarcely a manufacturing enterprise that does not use chemicals in some form and amount, much of it will be projected back to the chemical industry.

Plans and predictions of major chemical consuming industries for 1946 are generally optimistic: Steel makers are looking for a continuation of near-capacity operation throughout the year. Textile people forecast their largest peacetime year in history. Glass makers predict a new all-time high for their industry. Manufacturers of electrical appliances see an increase of as much as 50 per cent over 1940. Automobile people, once their employee differences are settled, expect two or three years of close to 6,000,000-car-per-year production.

Export needs, too, promise to be sizable this year. In the foreign markets American chemical producers now have a relatively clear field, and their prestige abroad has been boosted by their wartime record. South America, France, and Sweden have dollar balances, and U. S. loans are being arranged with Britain and some of the other war-damaged countries. The extent of these markets is limited only by their ability to pay.

Still other new chemical demands will be provided from within the industry itself. Elsewhere in this issue is a report of a survey of members of the Plastics Materials Manufacturers Association indicating sizable increases in virtually all types of plastics by mid-1947. Dow Chemical Co. alone has announced a $15,000,000 expansion program in plastics to take place over the next five years, which will bring the company's plastics producing capacity to 150,000,000 lbs. a year. All of these increases will mean corresponding demands for intermediates and various compounding chemicals.

Altogether the year would seem to offer a golden opportunity for chemical manufacturers to reestablish themselves with their civilian customers, build up or streamline their operations, repair plants, replace obsolete equipment, add needed facilities, set up reserve funds, pay off debts, and do any other things that may be indicated to provide a more solid business foundation for the future.

The Challenge: But a good year does not mean an easy one. There will be plenty of obstacles. Transportation delays and materials shortages will not be entirely memories. Labor does not appear to be satisfied yet and probably will not be as long as it continues to receive encouragement from Washington. Also, the experts seem to agree that new construction is likely to be a greater or less bottleneck for some time.

However, the real challenge to chemical industry's ingenuity and resourcefulness this year promises to be found in the mounting tide of costs in general. "More and better goods at less cost" has long been the guiding principle of American chemical makers. Seldom, and then not for long, have the curves of declining prices and expanding production in the industry reversed their accustomed trends.

But this year the job of keeping prices from heading in the wrong direction will be doubly difficult, with both rising costs and, in many lines, limited supply pushing on them from below. The challenge of holding the price line is one that must be met by production, research and sales departments as well as top management. Those companies which are able to meet it successfully may not be distinguishable in their year end statements from those who do not. But they will be the ones who pull out in front next year, and the year after that. They will be the leaders in the drive to the new chemical production peaks of the future. For American chemical industry will continue to go forward on the principle of better things at less cost.

Go Easy On Inventories

INVENTORY POLICIES on the part of some manufacturers that amount to outright hoarding of scarce items and materials are being blamed for some of the reconversion and construction bottlenecks that are holding up industry. Any manufacturer guilty of excesses of this nature is certainly to be condemned on grounds as serious as any black market charge. The irony of most such instances, however, is that with the interdependency of industries the hoarder will probably eventually hurt himself almost as much as the other fellow. Under any circumstances, it's poor business.

Technical Experts Needed

THE JOB THAT HAS BEEN UNDER WAY since before V-E Day of collecting technical information from German plants and laboratories is threatened with serious curtailment unless industry comes to the rescue. And according to those who have been directing the work there are yet many subjects, especially among chemicals, that the American investigators thus far have hardly touched.

This is the bald fact of a situation resulting from government refusal to extend appropriations beyond Jan. 1, 1946 to cover expenses of sending technical experts into Germany. With the expiration of the Technical Industrial Intelligence Committee on Dec. 31, 1945, along with its parent, the Foreign Economic Administration, the TIIC headquarters personnel both abroad and in this country became the Technical Industrial Intelligence Branch of the Joint Intelligence Objectives Agency, another Department of Commerce unit. Continuance of a headquarters staff for technical intelligence was thus provided for. The job of both furnishing and financing experts for further field work, however, has been left up to industry.

There is no doubt that much of the German technical data will be lost if additional field experts are not made available immediately. Delay permits more time for removal or destruction of records, and it is reported, moreover, that some of the German scientists and engineers are leaving Germany and going into Russia.

American chemical companies have their own interests at stake in getting as much of the German knowledge in their particular fields as they can. The investment of $2,000 to $3,000 per man for salary and expenses over a period of three months is not great for the amount of first hand information that a company or an industry may acquire, even though the investigator travels in the capacity of a representative of the United States Government and his reports must be made public.

Experts to go into Germany are still urgently needed in the following chemical classifications: acetylene, surface active agents and additives, calcium cyanamide, soaps and detergents, cosmetics, glass, fertilizer, phosphorus and phosphates, fluorine and compounds, chromates, chlorates, synthetic tannins, fermentation, potash salts, silicon chemistry, sulfites and sulfides, wood byproducts, cadmium, permanganates, insecticides and fungicides, synthetic fatty oils, polyamides, pyridine and derivatives, dry colors, ceramics, bromine, photographic chemicals, boron compounds, and abrasives.

Anyone interested in offering his services or the services of an employee for this work should communicate with the Chemical Unit, Technical Industrial Intelligence Branch, Joint Intelligence Objectives Agency, Munitions Bldg., Washington, D. C.

Presearch

THE NEED HAS BEEN EXPRESSED MANY TIMES for a more adequate term to describe that important chemical company activity that is concerned with providing data on markets, processes, raw materials, plant locations and other factors on which management must base its decisions to expand or not to expand along given product lines. This activity at present is covered in most companies by such titles as market research, commercial research, development, or management service, none of which seems to be entirely satisfactory as far as indicating the actual scope of the work is concerned.

One suggestion was made last year by Richard L. Davies and George T. Collins of the Pennsylvania Salt Mfg. Co. They offered the name "expansion research" as being more descriptive of the activity as it is carried out in most chemical companies (see "Expansion Research by the 'Pattern System'," CHEMICAL INDUSTRIES, June, 1945, p. 949).

Another contribution now comes from Mathew M. Braidech, director of research of the National Board of Fire Underwriters, who suggests "presearch" as a likely term.

There is little doubt that the activity these names are intended to describe is playing an increasingly important part in chemical company planning and operation, and it seems appropriate that it should be accorded corresponding standing and recognition, a prerequisite of which is a suitable name. Perhaps other readers would care to send in their views or comments on the subject. CHEMICAL INDUSTRIES would welcome any such expressions.

Getting Men to Work

A PROBLEM OF CHEMICAL PRODUCTION MANAGEMENT today is how to get men to work on the less desirable jobs. It will be complicated further if unemployment insurance is increased without proper safeguards.

In inducing men to work or to increase output, incentives play a major part. In the United States before the war the rate of wage constituted the chief incentive. During the war limits had to be placed on wages. This made necessary the use of other incentives. A War Production Board study made during the war covers 512 of these.

In this postwar period, if inflation is to be avoided, the wage inducement can be used only sparingly. It takes no managerial brains to outbid another employer. It takes real ingenuity though, to use some other incentives.


FRONTIERS OF HEALTH
Laboratory Research
In the advancement of man's health, there is no "last frontier." New fields are constantly opening up. Old fields keep widening.
Forward strides in group health are marked by better balanced meals, more nourishing foods, improved housing, safer working conditions. More effective drugs and pharmaceuticals used in therapeutics and preventive medicine are likewise bringing about similar improvement in the well-being of individuals.
Common to the many frontiers of health are research activities maintained uninterruptedly and on an extensive scale. An example is the scope of the research carried on by Chas. Pfizer & Co., Inc.
In the company's laboratories, chemists, biochemists, bacteriologists and other highly trained personnel are engaged in the development of chemicals and vitamins for food enrichment and for the production of pharmaceuticals used in combating disease. Pfizer research has been a major factor in the present day mass production of penicillin.
Since its founding in 1849, Chas. Pfizer & Co., Inc., has followed a policy of progress through research. Chas. Pfizer & Co., Inc., 81 Maiden Lane, New York 7, N. Y.; 444 West Grand Ave., Chicago 10, Ill.
PFIZER QUALITY
PFIZER Manufacturing Chemists Since 1849

Chemical Industries
JANUARY 1946

Intelligent Handling of COMPLAINTS Will Sell More Chemicals

by LYNN A. WATT, Director, Development Department
Organic Chemicals Division, Monsanto Chemical Company, St. Louis, Mo.

WITH THE RETURN OF A BUYERS' MARKET in chemicals, the handling of customer complaints takes on new importance. A good complaint adjustment system is both preventive and corrective in function. It can pay big dividends not only in keeping customers happy, but in building new business.

THERE is more to a complaint than a torrent of excuses, returned merchandise, harassed help, or adjusted bookkeeping. Proper diagnosing and handling of complaints is as much a study as selling the original order. Let's take a second look at this on-the-surface easy task.

Over a period of years complaints teach not only the obvious, diplomacy, but other lessons well worth knowing. It may be refreshing to the ego to laugh off a contaminated shipment with, "Something new has been added," but such freshness irks the customer.

In chemical industry we have learned a number of things, among them that complaints are few when a seller's market prevails. There may be at this period even requests for a lowering of standards—if that will produce more goods. Contrasted with this is the buyer's market, when there is an insistence on maintaining most rigid standards. It is this latter state with which we in the chemical industry are principally concerned.

It must be assumed that a chemical manufacturer, regardless of the industries served, maintains what the Food and Drug Administration calls "an adequate control system." This involves the examination of all raw materials going into a product, the proper sampling and analyzing of each lot of finished material, the recording of where each lot is shipped, and the retaining of samples of both raw materials and finished products.

For those who have operated such a system, it is not complicated nor burdensome, but it does need constant attention. Each package shipped bears on its label a code number which permits tracing the history of a product from the buyers' warehouse all the way back to all that has happened, including the day of manufacture, should that be necessary.

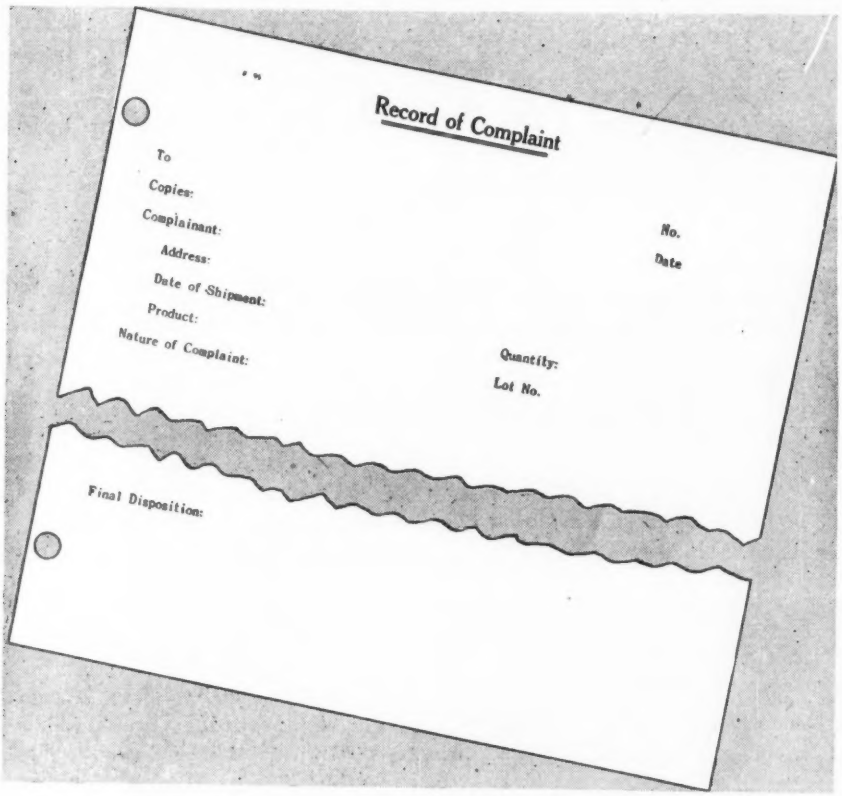
There is an advantage in having the handling of complaints tied in with specifications. In at least one organization with which we are familiar the individual in charge of handling complaints is also chairman of the specification committee. That procedure induces smooth handling and the prompt nomination of changes in a specification when the processing of a complaint develops that such a change or addition is desirable.

Likewise, should there be a proposed change in manufacturing which will involve a new specification, the one handling complaints should and often will have suggestions as to how this will affect current users. We know of instances where a new process produces a purer product. It may, however, change the crystalline form and thereby upset a user's formulation or processing. To discuss this with and submit samples to representative users before the change becomes effective does not constitute complaint handling but complaint prevention.

CONTAINER AND QUALITY COMPLAINTS

There are two general types of complaints, the simpler being those pertaining to:

The author (right) inspects some test data with Paul Benignus of Monsanto's Organic Chemical Division development department. Mr. Watt has been variously engaged in laboratory, plant, sales, technical service and development work since he entered the chemical industry some 25 years ago after graduating from the University of Illinois.



Sample of a typical printed form for recording complaint information and forwarding it to the operating superintendent who has charge of producing the material involved.

a. *Containers*—routing of shipments, invoices, discounts, etc.
b. *Quality*—which involves not only the adherence to the specification, but discoloration and contamination which may occur in transit.

Although the two types of complaints may be handled by the same individual or by the same department, it sometimes seems better to have the first class handled by those intimately familiar with containers and routing, and the second type handled by technical personnel and, as indicated above, tied in closely with specifications.

REPORTS ARE GUIDEPOSTS

A complaint may be received directly through correspondence or at the time of a salesman's call or through a district office. In any event, they all should clear through a central point, together with certain basic information which includes the name and address of the complainant, the date of shipment or at least an invoice number from which that date can be established, the name of the product, the quantity involved, and the manufacturer's lot number, plus a sample drawn from the shipment. This is all in addition to the specific complaint itself.

It is convenient to have a printed form for recording this information, and when it is assembled it should be forwarded to the operating superintendent who has charge of producing the product involved. It is well to forward this in duplicate so that the original, bearing the explanation and action recommended on the reverse side, can be returned to the one in charge of complaints. The duplicate is to be retained by the operating department.

It is then the duty of the one in charge to decide the case on its merits, make any adjustments, credits, or explanations which are both truthful and satisfactory to the complainant. This requires an attitude which is both fair and judicial.

At intervals of not more than three months, complaints should be summarized for the purpose of determining whether any plant or manufacturing unit is an undue source of complaints and, just as important, whether the control work is properly guarding the manufacturing unit and the company.

IMPORTANCE OF ACKNOWLEDGEMENT

Every complaint, regardless of its apparent significance, must be presumed as important to the man who made it. Therefore, a 24-hour rule for acknowledgement is essential. Perhaps the final answer can be given in 24 hours, but frequently a much longer time is required in order to investigate all the ramifications and determine first the validity of the complaint and, secondly, where the responsibility for it lies. Prompt acknowledgement and a prediction of when final disposition will be possible goes a long way in satisfying the complainant that he has been heard and that something is being done. It is poor public relations to leave a complainant in doubt on either score.

It has been indicated that the processing of complaints is well handled independently of either the sales or production department, although obviously with the knowledge and collaboration of each. Some sales managers will object strenuously to this, but such objection can be justified only if there are not available trained personnel in whom confidence to do the job can be placed. The older procedure of making refunds, accepting the return of goods without question or investigation, may curry favor temporarily and clear the matter expeditiously—*but*—a customer *can* be wrong and occasionally is! Proving the customer in error need not involve argument, animosity or forensics.

A customer needs material or he would not have ordered it. Do all the drums of a plasticizer contain water or, perchance, two or three out of a carload? The inspection of the rest of the shipment will cost money, but this inspection will be cheaper than the round trip freight cost. A diplomatic suggestion that this inspection be made with the understanding that the charge is for the shipper's account may give the buyer what he needs, when and where he needs it, and everything result happily and both parties save money. The problem of why two or three containers were not drained after cleaning can be settled later. That is a "family" affair.

Obviously the manufacturer cannot know everything, but a complaint about nitrating acid, including low yields, may, through a visit to the purchaser's plant, point out to him other material or engineering faults which will not only clear the nitrating acid from criticism but lead to continued better operations.

This is indication that not all complaints can be handled through correspondence or by telephone. Personal visits by trained personnel are frequently necessary. Even a medicinal product may be contaminated, wholely unexpectedly. In one case, contaminating specks spoiled the appearance of a white tablet, and inspection of reserve samples and discussion with those in charge of operations led nowhere. A visit to the purchaser's plant and careful sorting of a barrel of material did disclose a half teaspoonful of black particles, later found to have entered during mechanical handling. Authorizing the return of the material and telephoning the factory, making whatever adjustment was mutually satisfactory *on the spot* not only led to a happy conclusion of the specific incident but was the beginning of a friendly personal relationship which has resulted in many times the original business.

Contrast this method of handling with settlement by an individual salesman without bringing to light the real facts in the case, and we would have a situation in which the purchaser learned nothing about his supplier, the individual salesman learned nothing more than he already knew, and the production department

(*Turn to page 56*)

First Electrodeposition of Metal For Corrosion Resistance

by S. G. BART, President
Bart Manufacturing Co., Belleville, N. J.

THE FORMATION of strongly adherent pore-free coatings by the electrodeposition of nickel on the inner surfaces of pipe and other vessels for the first time provides still another tool in the battle against corrosion losses.

THE GOVERNMENT'S requirements for tremendous quantities of corrosion resistant, seamless pipe, which was not available in the usual corrosion resistant alloys, in sizes required, caused the Government to assign to Bart Manufacturing Co., Inc., the problem of working out a method of applying a corrosion resistant surface to the inside of the available steel pipe. Several years of research were necessary for this company to develop the recently announced Bart Lectro-Clad Process. This process, for which patents are pending, electrolytically deposits nickel or some other metal on the inside of random lengths of pipe and tubing approximately 20′ long, from 2″ to 18″ outside diameter.

Early attempts of producing corrosion resistant surfaces by electroplating have failed for a variety of reasons, among which were the difficulties in the anode designs required for plating random sizes, and the necessity of providing proper design of this unit to permit equal deposits to the internal surfaces throughout the entire pipe To overcome this, plating machines, specially constructed anodes and other special techniques were required, many of them radical departures from conventional methods of plating.

PROPERTIES OF PLATED BODY

By following the Bart process it is possible to produce such superior deposits of nickel as shown by Figure 1. Close observation of this photomicrograph will disclose that depressions in the steel are more heavily coated than high spots, thus tending to even the surface and resulting in smoother deposits. Generally in plating, the high points, or points of closest proximity to the anode, receive the most deposit. However, by using the Bart Lectro-Clad technique, the reverse occurs. This process also makes it possible to produce a ductile, and pore free nickel surface, complete adherent to the base metal with thicknesses from 0.005-0.100″.

The adherence between the nickel and steel is so perfect that the bond is not ruptured during heating, bending, or even under the tremendous stress and change undergone during a reduction, as shown in Figure 3. The pipe shown in this figure was drawn from a standard wall thickness of 4″ Iron Pipe Size (I.P.S.), with a coating of nickel of about 0.028″, was reduced by a ratio of 4 to 1, resulting in an iron pipe 3½″ O.D. with a thickness of 0.060″ of steel, and a nickel thickness of about 0.007″. The reduction of the nickel and steel differed by only fractions of a percentage.

FABRICATION TECHNIQUES

The resulting properties of this Bart Lectro-Clad Pipe enabled it to be welded and fabricated as simply as low carbon pipe. Welding and fabrication techniques have been fully developed, therefore the erection of piping systems completely lined with corrosion resistant material and meeting all conditions required by the A.S.T.M. code for pressure welding is possible. As shown in Figure 2, it is possible to maintain 100% continuous corrosion resistant internal surface by using welding electrodes of 25/20 chrome, nickel, or monel. The Brinell hardness of weld metal is between 150 and 185. In Figure 2, B is the carbon steel pipe, A is the nickel deposit, and C is the monel weld metal. As can be readily seen from this photograph, the weld metal C and the nickel deposit A form a continuous corrosion resistant internal surface.

In addition, Bart Lectro-Clad Pipe and tubing has been upset for producing a Van Stone joint without effecting the nickel on the inside surface. This, of course, enables the fabricator to produce flange joints, gasketed, and obtain complete protection against corrosion. Fittings and other pipe line accessories can be similarly processed for use in conjuncing out a method of applying a corrosion tion with Bart Lectro-Clad Pipe, providing a complete piping service.

These techniques, initially developed for the formation of nickel coatings have been successfully applied to the formation of chromium films, and there is no reason to believe that they cannot be successfully applied to many other metals.

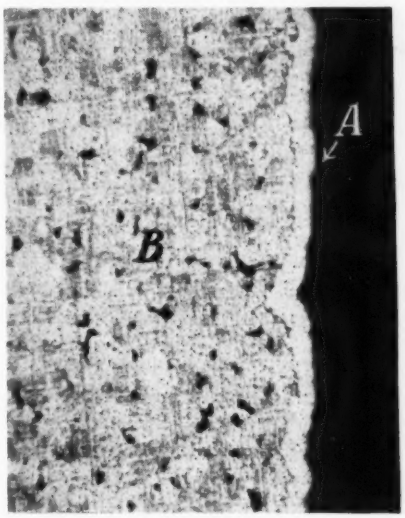


Fig. 1. The pore-free and adherent nature of the nickel coating can be seen from the above photomicrograph, taken at 100 diameters, where A is the nickel deposit, B the carbon steel pipe.

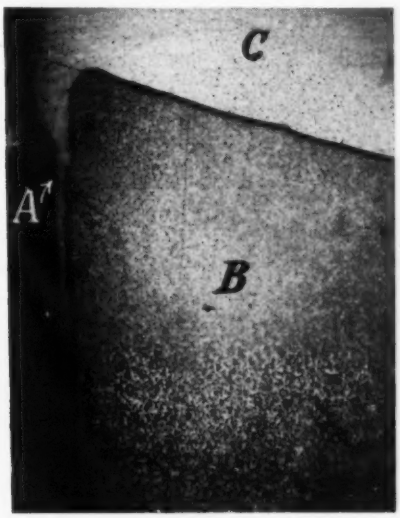


Fig. 2. The continuity of the nickel coating after welding is shown by the above photomicrograph, taken at 100 diameters, where A is the nickel deposit, B the carbon steel pipe, and C the monel metal weld.

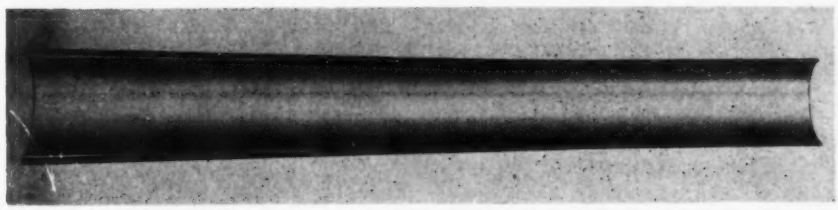


Fig. 3. The pipe shown above was reduced by a ratio of 4 to 1 from a 4″ pipe without rupture of the bond and with essentially equal reductions in the nickel and in the steel.

INADEQUATE LABOR AND PLANT CAPACITY are principal bottlenecks in the plastic's industry's attempt to keep up with soaring postwar demands. The next eighteen months will see large increases in capacity for nearly all types of plastics, according to this recent survey of plastics materials manufacturers.

Plastics Production Outlook For 1946 and 47

By F. CARMAN, General Manager
Plastics Materials Manufacturers' Association,
Washington, D. C.

AUTHENTIC estimates of the current, immediate, future, and long-range availability of plastic materials are now possible from an extensive survey of the members of the Plastics Materials Manufacturers' Association.

One of the most important phases of the supply picture of interest to the entire plastics industry is the expansion programs now being undertaken by many material manufacturers. Generally, it can be said that manufacturers of most of the newer types of plastics, who did not make large expansions during the war years, are now planning additional facilities for their respective materials. Many of these expansions have already been announced to the industry, and others are still pending.

A conservative estimate of the plans of the association members alone is that new facilities for production of plastic materials will entail expenditures amounting to 102 million dollars during 1946 and the early part of 1947. A major portion of these new facilities will be for the production of molding materials.

Completion dates of new facilities vary considerably. Whether or not any given expansion program can be carried out on schedule depends upon building material supply, building labor, and the ability of the equipment manufacturers to turn out special types of equipment required in a reasonable time. Barring unforeseen delays, many of the expansion programs will become effective in the spring of 1946 and thereafter through the middle of 1947.

One of the most disturbing factors in the present supply situation is the availability of labor. Generally, the supply is extremely critical in areas in the east and New England. In other areas, there is sufficient labor to operate plants at or near capacity. Where labor is tight, manufacturers are operating longer work weeks and using all possible means to maintain full production schedules.

Manufacturers of phenolic molding materials are being severely hampered by shortage of wood flour. It has been extremely difficult for the last two or three months to obtain good quality material in sufficient quantities. Continued strikes in the lumber industry on the West Coast and insufficient conversion capacity in this country may eventually choke off the supply. It is hoped improved labor situation and possible resumption of wood flour imports from the Scandinavian countries will relieve this shortage.

A strike in the steel industry would eventually slow down cooking ovens, thus curtailing tar acids supplies. These labor difficulties, together with shortage of labor in the material manufacturers' plants and in many of the molders' and fabricators' plants, are and may continue to materially restrict the amount of plastics that are actually consumed.

Other material shortages are insufficient supplies of cellulose acetate flake, for which ample expansion of facilities is now going forward; critical supply of cotton waste, which could restrict production of impact materials should the demand become heavy; and possible uncertain supplies of coloring pigments for styrene molding materials when the large expansion of this plastic becomes effective.

Reports to the association indicate the following for various plastic materials.

Phenolic Molding Materials. Most producers are severely curtailed by shortage of labor and wood flour, and are currently unable to run at capacity. It is estimated that producers are now operating at about 70 per cent of capacity. Unless there is a material change in wood flour availability, it is now indicated that production will fall off still more in the immediate future.

Assuming that wood flour and labor become available in the early part of 1946, it is estimated that new facilities will allow about a 16 per cent increased material supply, based upon present capacity of manufacturers. Expansion of facilities now pending, and in some cases already started, will permit approximately a 42 per cent increase over present capacities during the early part of 1947.

Urea and Melamine Molding Materials. The manufacturers now in production are operating substantially in excess of 90 per cent of total capacity, and the amount now available to molders is approximately 25 per cent in excess of that during 1944. Shortage of labor is the only item restricting operations to any extent. It is anticipated that new facilities and additional labor, together with another producer resuming production of urea molding materials, will effect a 25 per cent increase over the present rate of production starting April, 1946. Announcements of expansions in molding powder production to become effective during the latter part of 1946 or early 1947 will permit production at a rate 80 per cent higher than the current levels.

Thermoplastic Molding Materials. The shortage of these materials has been fairly acute, partly because of increased molding facilities made available during the war period and the fact that large expansions by the material manufacturers were not possible during the same period.

MATERIAL	PRESENT PRODUCTION	BY MID-1946 (Compared with present)	BY MID-1947 (Compared with present)
Phenolic Molding Material	70% of capacity	Capacity up 16%	Capacity up 42%
Urea & Melamine Molding Materials	90% of capacity	Production up 25%	Production up 80%
Cellulose Ester Molding Materials	100% of capacity	Capacity up 6-10%	Capacity up 53%
Polystyrene Molding Powders	100% of capacity	Capacity up 135%	Capacity up 600%
Acrylic Molding Powders	100% of capacity	Capacity up 20%	Sufficient to meet demand
Ethyl Cellulose Molding Material		"Availability" up 13%	"Availability" up 36%
Polyethylene and Nylon		"Greatly enlarged" capacities by 1st quarter 1947	
Vinyl Resins	70% of capacity	100% increase "over the long term"	
Vinylidene Chloride		Production up 100% from 1944	Production up 350% from 1944
Cellulose Nitrate Sheet, Rod & Tube	50% above 1944	Slight increase by 1947	
Cellulose Acetate Continuous Sheet			"Availability" up 66%

Data based on survey of members of Plastics Materials Manufacturers Association

Substantial increases in manufacturing facilities are included in the tremendous expansion program already mentioned for the entire industry. Estimates from association members indicates that consumers may anticipate approximately a 33 per cent increase in production during the first quarter of 1946. Expansions now under way and pending will continue to bring in additional capacity during the year; and by the second quarter of 1947, it is anticipated that thermoplastics availability will be increased by about 150 per cent of the present level. The supply situation for the specific grades follows:

Cellulose Ester Molding Materials—The industry is now operating substantially at capacity, although additional acetate flake in a few instances would permit even larger tonnages. Additional facilities may make it possible to increase the present rate by approximately 6 to 10 per cent in the first quarter of 1946.

Among PMMA members, new facilities for the manufacture of flake as well as molding materials, already announced and pending, to be brought in during the latter part of 1946 and through July, 1947, will ultimately provide manufacturing capacity 53 per cent in excess of present production.

Polystyrene Molding Powder—Producers are operating substantially at capacity of the present equipment, and there has been considerable increase over the average production of 1944.

New facilities now under construction should provide additional material during the early part of 1946, amounting to an increase of 135 per cent over current supplies.

Long-range expansion of facilities, already announced or pending, may permit production in the magnitude of a 600 per cent increase, based on present operation. This appears to be the largest expansion program for any given plastic material now under consideration.

Acrylic Molding Powder—Producers report operations at capacity with demand considerably in excess of supply. It is anticipated that substantial increases during the first quarter of 1946 may increase the present supply by approximately 20 per cent. Expansions requiring a year or more are now under way, and producers feel that the new capacities will be sufficient to take care of all demands which can be foreseen.

Ethyl Cellulose Molding Material—Producers have already brought in substantial expansions which are now becoming effective with increased materials. Availability in the early part of 1946 may be further increased by about 13 per cent, and by the first quarter of 1947 by approximately 36 per cent of the present supply.

Polythene and Nylon Molding Material—The present capacity is sufficient to meet demands. However, anticipating future requirements, manufacturers will have greatly enlarged capacities available during the first quarter of 1947.

Vinyl Resins. Shortage of labor is holding production of the *compounding plants* at approximately 70 per cent of capacity. Because of the time required to expand facilities, consumers can anticipate increases only as labor becomes more plentiful. It is believed that this labor problem will gradually improve from now on. Over the long term, it is anticipated that compounding capacity for vinyl resins will be increased by about 100 per cent.

There appear to be substantial quantities of polyvinyl chloride, vinyl chloride-acetate, other vinyl chloride copolymers, polyvinyl butyral and polyvinyl acetate available in resin form. For certain types, there was a tenfold expansion during the emergency. The ending of the war, delays in reconversion of customers' operations, need for new processing facilities, and labor difficulties in customers' plants, particularly in the automotive and consumers good fields, have somewhat lessened the demand for these resins.

Vinylidene Chloride. Substantial increases in capacity over 1944 have already been effected, and it is anticipated that this plastic will be available in quantities approximately double the 1944 rate during the early part of 1946. In the early part of 1947, the volume of production will be about 450 per cent of the 1944 rate.

Cellulose Nitrate Sheet, Rod and Tube. Producers report capacity operations, with shortage of labor causing difficulty in some cases. Demand is somewhat in excess of present supply. Flake production is now 50 per cent over that of 1944, and a slight increase in capacity is anticipated early in 1947.

Cellulose Acetate Sheet, Rod and Tube. Producers are running at capacity, but in some cases shortage of flake is restricting operations. There is no forecast for increased production of *film* during the first quarter of 1946. However, there will be increased availability of *continuous sheeting* during the latter part of 1946 and through July, 1947, amounting to roughly 66 per cent increase over the present rate.

Adhesives, Laminants and Specialties. There has been a marked drop in the de-

(*Turn to page 157*)

NAIDM Discusses Business Outlook

EDITORIAL STAFF REPORT

IN CONTRAST WITH THE GLOOMY CONCERN over wartime shortages at its 1944 meeting, the National Association of Insecticide and Disinfectant Manufacturers, meeting last month in New York City, anticipated new highs in postwar building and travel which will create an unprecedented market for insecticides and sanitary supplies. Most raw materials scarce during the war are now — or soon will be — available to meet the expected demand.

THE EXPECTED boom in postwar building, extending not only to private dwellings, but to hotels, schools, apartment houses, hospitals, and other institutions as well, provided a sound basis for optimism at the 32nd Annual Meeting of the N. A. I. D. M. at the Hotel Commodore, New York City, December 3 and 4. This note was struck by Henry A. Nelson, of the Chemical Supply Co., Cleveland, Ohio, outgoing president of the Association, in his presidential address:

"There is every reason for 'little business' to be optimistic, provided we as individuals have the will to succeed. The majority of new industrial plants, erected during the war, have maintained a high degree of sanitation. Others had to follow suit in order to retain their working forces—and unions will not permit unsanitary conditions in plants today. New schools will be built; hospitals everywhere are contemplating new additions to their buildings; institutions of all kinds are overcrowded and are clamoring for larger quarters. All this means increased markets for the products of our industry."

The financial capacity of individuals, corporations, and governmental bodies to undertake these expansion projects was revealed in a general picture of the business outlook presented by Dwight W. Michener, assistant director of the Research Department, Chase National Bank. Showing graphs of individual and corporate holdings of securities and bank deposits, he pointed to this vast reservoir of purchasing power as an unprecedented source of capital. Although his comments were not specialized in regard to sanitary chemicals, they were significant insofar as the fortunes of the industry are dependent upon the general business climate throughout the country.

The newly-elected president, N. J. Gothard, of Sinclair Refining Co., East Chicago, Ind., presided at the Scientific Forum.

FATS AND OILS

Fats and oils will remain in short supply throughout 1946, according to John B. Gordon, the Association's Washington representative. Our cotton crop is short, which will mean less cottonseed oil; and our soybean crop is not up to expectations. The diminished number of hogs on farms and the tremendously reduced rate of slaughter has resulted in a considerably lower production of lard and grease. Only recently have hogs begun to move to market, and now the packers do not have the manpower to handle them. The increased slaughter in prospect will ease the lard and grease supply situation, but there still will not be enough adequately to meet the demand.

There is an increased slaughter of beef cattle, and this will mean a larger production of tallow as the large number of beef cattle now on feed move to market; but the supply will continue short of demand all through 1946. Linseed oil supplies during 1946 will be far below requirements.

Henry A. Nelson (left), Chemical Supply Co., Cleveland, Ohio, and past president of the N.A.I.D.M., talks with Arthur C. Pabst, of Socony-Vacuum Oil Co., New York.

DDT LABELING

Last year the Association was especially concerned about the uses and characteristics of DDT. At that time the material was allocated strictly for military uses and bona fide experimental investigations; and civilian use, with its attendant problems, was still in the conjectural stage.

This year, the problem of enforcement of the Insecticide Act, particularly with regard to the labeling of DDT insecticides, was a matter of concern to the Insecticide Division of the Department of Agriculture. Dr. W. G. Reed, chief of

the Division, was unable to attend because of illness; but his paper was presented by E. L. Griffin, of the same Division. Dr. Reed deplored the fact that the public has received a great deal of confusing information about DDT and its proper concentration for insecticidal use. The Division has never raised any question concerning the use of small proportions of DDT in space sprays in combination with other active ingredients, but it does object to statements on labels from which the user is likely to infer that more of a particular substance is present in a formulation than is actually the case. Since aerosols contain one or more inert ingredients, it is necessary under the Act that their labels bear a plain and correct statement of the name and percentage present of each and every inert ingredient; or, in lieu of this, a plain and correct statement of the name and percentage of each active ingredient together with the total percentage of inert ingredients. (For official labeling recommendations see CHEMICAL INDUSTRIES, Sept., 1945, pages 453-54.

John Powell (left), of John Powell & Co., New York, and treasurer of the Association, with Friar Thompson, Jr., R. J. Prentiss & Co., New York, general chairman of the Scientific Forum.

DISPLAY URGED

Reporting on the activities of the Association over the past year, H. W. Hamilton, of the White Tar Division, Koppers Company, and secretary of the Association, commented that chaos broke loose in the industry with the end of the war, when materials supply controls were suddenly released. Hundreds of people—manufacturers, would-be manufacturers, and consumers—sought information about new insecticides, supplies of materials, and the like. It was decided to proceed cautiously, and this policy is still being followed.

In closing Mr. Hamilton urged that a year or two years from now an exhibit should be planned in connnection with the annual meeting.

LEGISLATION

Reporting on the activities of the Legislative Committee in advising upon state and federal bills affecting the interests of the industry, Chairman W. J. Zick of Stanco, Inc., said that forty-four state legislatures were in session in 1945. In addition, a committee representing the Association met with the U. S. Department of Agriculture in Washington to discuss a proposed federal insecticide act. Many recommendations made by the committee, he said, had been incorporated into the act.

SCIENTIFIC FORUM

The main business of the convention was carried out in a scientific forum under the general chairmanship of Friar Thompson, Jr., R. J. Prentiss & Co., Inc. This was divided into three sections in order to cover the special interests of the members: Sanitary Specialties, under A. C. Pabst, Socony-Vacuum Oil Co., Inc.; Disinfectants, under G. L. Weirich, the C. B. Dolge Co.; and Insecticides, under F. C. Nelson, Stanco, Inc.

In the first-named section the problem of dyeing and coloring sanitary products was taken up by H. F. Hermann, of General Dyestuff Corp. He indicated the various factors, such as permanence requirements, staining limitations, cost, chemical and physical nature of the material, and the like, which must be considered in choosing a dye for a product. Under the auspices of this section was also a symposium on the raw materials used in floor waxes. Here Melvin Fuld, of Fuld Bros., discussed the market situation. He said that since the removal of OPA restrictions prices have been fluctuating and conditions are generally chaotic.

The germicidal properties of a relatively new type of disinfectant, the quaternary ammonium compounds, were discussed before the disinfectants section by two men from Lehn & Fink Products Corp., Dr. E. G. Klarman and E. S. Wright.

INSECTICIDES

The present market situation, future insecticides, sprayer problems, publicity, and technical developments and standardization were the diverse topics considered by the Insecticides section. Keen competition is expected, in finished insecticides as well as in toxicants, and much confusion exists and will exist in the minds of retailers and consumers. "The sudden release by WPB of DDT brought about so much confusion that the insecticide industry for weeks on end has been in a state of turmoil, trying to bring order out of the chaos caused by conflicting claims on the part of many misinformed people. Literally thousands of individuals throughout the land set themselves up overnight as manufacturers of DDT sprays and rushed into the market. It was inevitable that some of these should be 'gyp' products."

One NAIDM writer expressed the opinion, "Now comes the insecticide industry's turn to go to bat and begin to undo the damage which has been done to DDT in the public mind by a lot of publicity-seeking opportunists."

NICHE FOR SMALL BUSINESS

In addition to appraising optimistically the outlook for a prosperous industry as a whole, Mr. Nelson in his presidential speech dwelt at some length on the problems faced by "little business" within the insecticide and disinfectant field. He saw, moreover, where they were in an advantageous position in some respects:

"It is significant that some of the largest manufacturers in the country are preparing to offer new production at pre-

F. C. Nelson, Stanco, Inc., discussed "Technical Problems Related to Insecticides."

R. C. Roark, chief of the Insecticides Division, Bureau of Entomology and Plant Quarantine.

Alfred Weed, of John Powell & Co., explained "Labeling of Insecticides" before the forum.

Quaternary ammonium disinfectants were described by E. G. Klarman, Lehn & Fink Products Corporation.

war prices despite increases in costs. They are counting on volume. They have seen during the war years what maximum production can do to lower costs, and they realize that the lowest possible prices are the key to a permanent prosperity.

"In the insecticide industry 'little business' will be confronted with several large newcomers. Up to this writing the aerosol bomb, for instance, can be produced only by firms having the costly machinery for making and filling the containers. Several companies who prior to the war were engaged in the manufacture of electrical appliances, or other large-scale mechanical production, have now added insecticide departments and are marketing their aerosol bombs aggressively through their long established trade outlets. However, developments are now under way which may enable 'little business' to fill its own aerosol containers before long. . . .

"There will be many new cafes, restaurants, amusement places, etc. With gasoline restrictions lifted and new cars coming off the assembly lines soon, we may expect the establishing of more small hotels, tourist courts, etc., which will need cleaning compounds, insecticides, disinfectants, and the like. The 'little businessman,' through closer personal contacts, will be able to serve these numerous new customers in a way that is bound to result in more orders.

"But if the smaller business is to succeed in the new competition, it must take a leaf out of the book of large business. Salesmen must be trained in the art of selling. They must know their products, and they must present them intelligently. It is the one thing that little business seldom seems to think important enough to do anything about. It is often pitiful to hear some salesmen, representing smaller firms, present their wares to buyers who often know more about the subject of sanitation than do the salesmen themselves. How can anyone expect to get business under such conditions? It will pay you to make a few trips with your salesmen and find out first hand how they represent you and your products. You'll agree then that there is much room for improvement.

"'Little business' may not have the necessary funds to conduct extensive research. It can, however, avail itself of the scientific information obtained under the auspices of trade associations like our own. Moreover, most every manufacturer of raw materials and finished products supplies his trade with various kinds of selling aids so that even the smallest individual in our industry can have at his fingertips the results of many years of costly research. Properly used it constitutes invaluable sales ammunition.

"So long as the American system of free enterprise remains in effect, so long will 'little business' prosper in direct proportion to the efforts put forth by its owners."

NEW OFFICERS

At the close of the session officers for the following year were elected. The new officers are these: president, N. J. Gothard, Sinclair Refining Co.; first vice-president, Gordon M. Baird, Baird & McGuire; second vice-president, A. W. Morrison, Socony-Vacuum Oil Co.; treasurer, John Powell, John Powell & Co.; and secretary, H. W. Hamilton.

Elected to the board of governors for three years were D. F. Murphy, Rohm & Haas Co.; Henry A. Nelson; and Jack Varley, Baird & McGuire; for two years, Arthur Rasmussen, Furst-McNess Co.; and for one year, G. H. Wood, G. H. Wood & Co., Ltd.

It was decided that the mid-year meeting will be held in June at French Lick Springs, Indiana.

Handling Complaints

(*Continued from page 50*)

made no correction in their operation—why should they! In the recommended procedure, all parties enjoy a mutual confidence and it is a pleasure to have production men not only interested but admitting that they can learn more about the products, even occasionally about equipment, through following the recommendation. Complaints expertly handled are seeds for future business.

There is one factor—call it intramural if you like—which is important. It is more difficult to "sell" one's own sales and production departments than it is the customer. We have known of statements and even letters to customers which were unduly critical of a control laboratory or a manufacturing department or a salesman. It should be a rule not to make such statements or write such letters. The customer, presumably, is not interested in "family" difficulties and the one handling complaints needs the confidence and all the facts which any party to production and sales can contribute. Those facts will only be forthcoming if there is confidence on the part of the one having the facts that judgment will be fair and no individual incriminated.

One good way to further this confidence is on occasion to take a production or a laboratory man into the plant of a complainant; let him see with his own eyes how much confusion can be caused by what on the surface may seem like a small matter.

COMPLAINTS CAN BUILD GOOD WILL

Complaints can be minimized but never eliminated completely. That is the experience not only of chemical manufacturers but steel companies, telephone companies and all other industry. Too, intelligent handling—prompt and understanding—can not only remove the stigma attached to a complaint, but build good will, teach the manufacturer new things about his own product and processing, and be a source of additional business.

The Problem of German Chemical Industry

by ALBERT B. NEWMAN

Office of Military Government (U. S.), Berlin, Germany

On leave of absence as dean of engineering, College of the City of New York, Dr. Newman heads the chemical group in the U. S. Zone of Occupation in Germany under Gen. Clay. The following is part of the message he sent from Berlin to the 38th annual meeting of the American Institute of Chemical Engineers in Chicago last month.—EDITOR.

IN SENDING chemical engineers to Germany, our government has had several objectives:

First there was the early mission of finding out what was new in Germany in processes and products.

Second came the problem of spotting and emasculating the installations designed solely for war needs.

Third was the problem of getting production started in plants capable of producing supplies for the occupying forces and the civilian population.

Fourth was the study of the level of chemical industry to be left in Germany under the Potsdam agreement.

Fifth was the achievement of this level of industry by reaching intelligent decisions as to which plants were to be declared surplus and therefore offered as reparations or destroyed.

Sixth was the setting up of controls to insure against production of certain chemicals in excess of peacetime needs and possible export requirements.

It is obvious that the destruction of the purely war-potential installations, and the starting of production in those whose products are urgently needed, are purely United States zone problems for the present, except for the constantly recurring necessity of arranging for raw materials from other zones.

It is also obvious that the study of the level of chemical industry to be left in Germany and decisions on reparations have to be made by quadripartite cooperation.

The Potsdam agreement set up time limits on quadripartite operations which force us to work on all phases at once.

It would seem logical to get the level of industry worked out and agreed upon before reparations are determined, but time pressure is so great on the reparations question that we must open some plants before a definite determination can be made about the need for these plants in the final economic balance to be established.

Again, we may find it necessary to give up plants which we know would have definite use in peacetime economy but which contain elements having excessive war potential, rather than expend the time necessary to make careful studies, followed by skillful chemical engineering surgery to eliminate the dangerous growths.

SYNTHETIC NITROGEN

The problem of getting necessary production going in a nation as nearly in a state of industrial and economic collapse as Germany is now is a very difficult one. Foremost are the requirements of coal, coke, and electric energy.

As an example, look at the case of synthetic nitrogen for use as fertilizer for 1946 crops. The Potsdam agreement makes it mandatory to maximize agricultural output. So, no matter what decisions may be made about synthetic nitrogen production in Germany when the final level is established, the chemical and agricultural people of four nations assembled here in Berlin have pointed out the urgency of securing the highest possible nitrogen production in Germany before the spring planting takes place. The highest British, Russian, French, and American authorities have authorized that everything possible be done to get the nitrogen plants in their respective zones operating at their maximum capacities. Nevertheless, it has not been possible to deliver to these plants anything like their complete requirements of coal and coke. Importing of 284 thousand metric tons of nitrogen between now and the spring planting are necessary if Germany is to have full crops for 1946.

PHOSPHATES

The phosphate situation is equally shocking. Germany depended on basic slag, a byproduct of steel manufacture, for two-thirds of its agricultural needs for phosphate. Only about one-third came directly from phosphate rock, none of which originates in Germany. Most of the rock came from the United States and North Africa. The steel industry is not in operation, and there are no imports of phosphate rock. German capacity for converting phosphate rock into fertilizer is less than one-third of what is needed, and even these plants are idle. Imports of three hundred thousand metric tons of P_2O_5 are urgently needed between now and spring planting to save the 1946 crops.

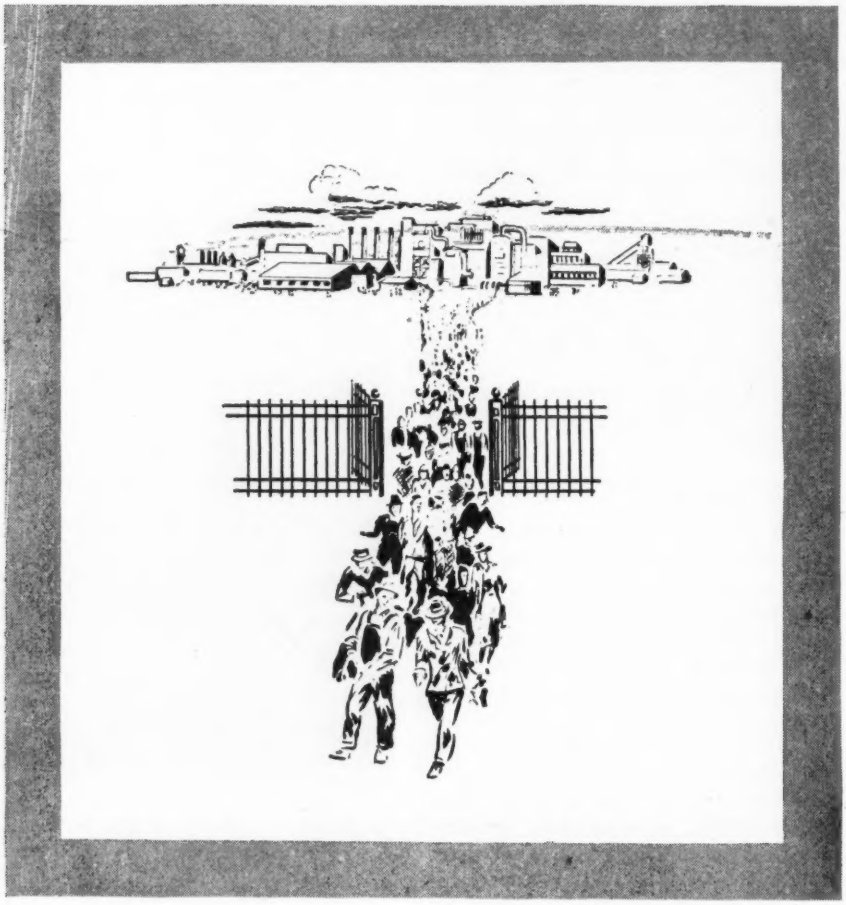
The author (left) and friend pose in front of demolished German military explosives plant at Kaufbeuren.

One of the most acute immediate problems in Germany is that of finding raw materials for the manufacture of enough soap to provide a scanty ration for the population. During the war, Germany, instead of importing vegetable and animal fats for soap manufacture, depended largely upon synthetic fatty acids produced as byproducts of synthetic motor fuel.

THE FUTURE

Representatives of the four nations are working strenuously on the future level of German chemical industry. It is too early to give out any of the results. At this moment it is sufficient to state the fundamental American position in these negotiations. We are adhering closely to the provisions of the Potsdam agreement. We do not wish to see the clock turned back to the period of caveman existence in Europe. We realize that there cannot be in existence at the same time a Germany in a state of complete collapse and a prosperous France, Belgium, and Holland. There must be a level of living considerably above mere subsistence in all of Europe—otherwise the United States will be continually receiving appeals for aid.

We need and hope we have your support and backing in our extremely difficult and trying task. We feel that we have a very great responsibility; what we do now in cooperation with our allies has a very direct influence on the future peace and prosperity of the world.



The Current Crisis in EMPLOYEE RELATIONS

by O. C. COOL
Director, Labor Relations Institute, New York

ALTHOUGH THE CHEMICAL PROCESS INDUSTRIES have had a relatively good labor record, there is no such thing as lasting immunity from strike or stoppage, and the employer who keeps informed on conditions and trends will be the better prepared to avoid trouble in the future.

THERE are four outstanding factors in the current employee relations crisis, and all of them deserve the serious consideration of management, however free it may momentarily be from labor difficulties of its own.

Here are the points which stand out when the reconversion picture is studied and dissected:

1. The trend *away* from collective bargaining.
2. The major weak spots in Management's armor:
   a) Unsound disciplinary practices.
   b) Widespread wage inequities.
3. Foreman's unionization.
4. White-collar organization.

The trend away from real collective bargaining is the gravest development which has taken place in labor-management relations since the end of the war. For years, Labor vociferously accused Management of evading and bypassing collective bargaining. But now the shoe is on the other foot. The strategy of Labor today is to steer clear of the negotiating process. Here are some of the weapons that are being used to prevent the adjustment of differences around the conference table:

BARGAINING OBSTACLES

A strike vote under the Smith-Connolly Act. This is becoming a common resort. Before they even sit down to negotiate, some unions are making it a practice to go to the National Labor Relations Board and request a strike vote. If it is taken and the members approve—as they generally do—the union is free to call a strike within 30 days. What was intended by the sponsors of the law to be a "cooling off" period after all possible alternatives had failed is thus perverted into a combination deadline and club. In the tense atmosphere which follows the voting, management "negotiates" with a pistol pressed to its head. Obviously, this is not conducive to the give-and-take of real collective bargaining.

The "Good Faith" increase. Encouraged as it is by present Department of Labor practices, watch this Reconversion Baby grow! "Before we sit down to negotiate our final demands," this proposition goes, "give us a 5% increase as evidence of your good faith in collective bargaining." The employer who grants this request merely plays into the hands of those who wish to boost wages way above the present scale. Once the employer gives the 5%, he is virtually obligated to talk on the basis of 30%—with the 5% excluded entirely from the area of negotiation. The wise employer will resist all demands for "good faith" increases: his willingness to sit down and negotiate is all the "good faith" evidence that is necessary. Refusal of a "good faith" increase does not constitute an unfair labor practice.

Forced or "Split" Arbitration. This was what happened in the oil industry case. Management offered a 15% increase. The union countered with a 30% demand —and the Government imposed arbitration of the difference, not of the entire 30%. The danger of this method, which may well spread and multiply, is that it may spoil arbitration as a solution of disputes.

If the present practice continues, it may become a two-edged sword. What is to stop management, for instance, from saying to a union during an off year, "We think wages should be cut 30%, and you say 10% is all you can stand. Let's arbitrate the difference!"

It might be well for management to point this out to labor at every possible opportunity. Arbitration is too trusty a dispute-settlement tool to be debased in this fashion.

All three of the variations named—strike votes before negotiations, "good faith" increases, and "split" arbitration—are hazards to collective bargaining in the future. Management has accepted collective bargaining and, generally speaking, wants to live up to it. Therefore,

management should insist that true collective bargaining be preserved and utilized to the fullest possible extent.

IMPROVING DISCIPLINARY METHODS

In cases too numerous to cite here, the "hook" on which reconversion labor disputes have been mounted is some unsound disciplinary action on the part of the employer concerned.

The war resulted in a great influx of marginal workers, including some who are downright insubordinate, incapable and even malicious. But in justice to employees—and also to the company's labor relations and community relations—the punishment for rule infractions should fit the crime. Indiscriminate layoffs are certainly not the answer to this problem.

There are certain infractions which should be punished by discharge. Generally speaking, drunkenness on the job, gross insubordination, and conduct that endangers the lives and limbs of others, are reasonable causes for discharge. But these "felonies" are few in number when compared with the lesser misdemeanors —tardiness, unexcused absence, smoking on the job, failure to report spoilage, and the like.

Example after example over the years has convinced me that layoffs for punishment are futile as a corrective. The worker who has been punished in this fashion usually harbors resentment for the shame he has suffered in the eyes of his family and friends—not to mention the loss of income, which may work considerable hardship.

I believe in the warning system. Not the public, "shame on you" sort, conveyed with orange-colored cards and big type. These make the worker lose face and suffer embarrassment. The method which works best employs routine communications to the effect that such-and-such a rule has been broken, and a record made of the offense. After so many warnings, depending on the nature of the infraction, the worker is discharged for good and all. There need be no recriminations, no scolding—and no fireworks from the union. The record is there on the books, to refute any charge of "unfair labor act" or discrimination.

It is a grave indictment that only one company in the United States out of five has a printed book of rules. Even fewer than one out of five have a standard system of disciplinary practices. This is a situation which top management should—and must—correct.

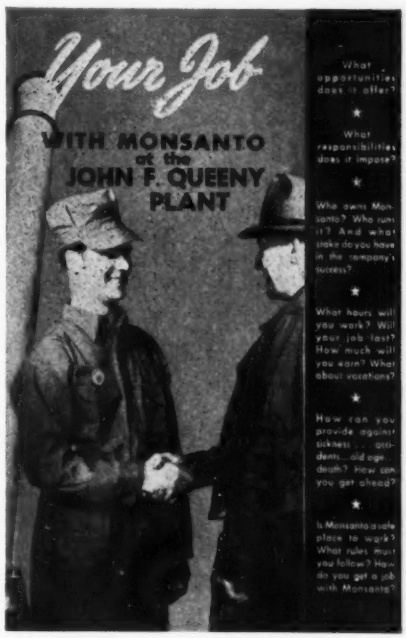
In doing so, let us take an inward look. Good discipline starts at the top. The manager or superintendent who smokes a cigar in the shop can hardly expect workers to observe the no-smoking rule. Executives who ride up and down in freight elevators, to save steps, only incite people in the plant to do the same thing. "They get away with it. Why shouldn't I?" is still a basic human reaction.

Another outgrowth of the war is the haphazard way in which wage rates and salary scales have been permitted to develop, in spite of stabilization. The time has come to systematize the whole set-up. Whether it be in the plant or in the office, there is no room today for inequities in pay. Wartime regulations only scratched the surface. The time has come to think the whole problem through and evaluate every job on a company-wide scale.

One sure way to invite future trouble is to give an increase here and an increase there, without studying the whole organization and its interrelationships. Going at the job piecemeal always causes inequities.

An inequitable wage scale is one of the worst causes of discontent. In organized plants, it burdens the management with grievances and opens the door to organization. The experience of hundreds of companies has been that the slight cost of job evaluation has paid handsome dividends. Scientific job evaluation *frees management to manage.*

There is another important aspect to this subject. Job evaluation vastly



Front cover of one of Monsanto Chemical Company's employee handbooks. It is a grave indictment that only one company in the United States out of five has a printed book of rules.

simplifies the task of collective bargaining, not only by eliminating contention over inequities, but also by narrowing the field of wage negotiation to the basic hourly rate. Changes in the basic rate are then proportionately applied across the board.

FOREMAN UNIONIZATION IS SPREADING

The growth of foreman unionization is not just a wartime phenomenon. In fact, reconversion tends to speed up the process, because cutbacks and layoffs in many industries have made it necessary to demote thousands of foremen to the rank-and-file. Joining a foreman's union is no guarantee against demotion, but these organizations do hold out the hope of maximum job security, plus accumulated seniority status upon return to subordinate posts, if the latter cannot be averted. The success of various unions in obtaining pay increases and fringe raises for production workers has also given foremen food for thought—especially in cases where the average worker's take-home pay has equaled, and sometimes even passed, that of the supervisor.

You can't keep foremen from organizing by calling them "supervisors" "sub-executives" or by some other title. The NLRB goes by job content, not title. But there *are* certain positive steps which can be taken in order to make foremen conscious of their role as "part of management," and to give them satisfactions, income and perquisites which fit their concept of the foreman's job. Here are some that have worked successfully:

1. *Special privileges*—separate desk or private office; enclosed communications from top management; separate washrooms and locker rooms for foremen; sign-in sheets instead of time-clocks; separate pay window for supervisors, or payment by check.

2. *Hiring and firing*—decentralization of personnel department to give foremen the final say on accepting new recruits or, recommending transfers or discharges. No worker should be retained in any department over the foreman's protest.

3. *Settling grievances*—a two-pointed topic. Foremen don't like to be bypassed by subordinates and union stewards who take their complaints "higher up." Upper management should not concern itself with such grievances, except upon appeal from the proper foreman's ruling. Foremen's own grievances also should be settled promptly.

4. *Take-home differential*—Foreman's take-home pay should exceed that of highest-paid worker under his direction by 15 to 30 percent. In addition, foremen should receive such benefits as time-and-a-half for all hours over forty; paid sick leaves; longer vacations—with pay.

5. *Seniority and job security*—best device is to allow foremen accumulated seniority from the time they joined the company, to protect them if cutbacks necessitate demotion to production jobs. Demoted foremen should not be reduced in pay for at least 90 days, and the ultimate rate should not be less than the maximum for the new classification. Such ex-foremen should retain seniority rights for reinstatement in supervisory jobs when opportunity permits. Foremen should also be included in the company's retirement plan.

6. *Promotion and advancement*—keep

(*Turn to page 157*)

The Versatile Alkyds Find New Uses

by Georgia Leffingwell and Milton A. Lesser

New York, N. Y.

ALTHOUGH the synthetic alkyd resins are still comparatively new in the field of industry, their versatility is well established. Primarily employed in the production of decorative and protective coatings the alkyds have become adapted to the needs of an increasing number of other industries. When suitably formulated or modified, these resins have proved to be highly efficient as bonding and impregnating agents, as molding and film forming materials, as emulsifiers and demulsifiers, and are suitable for a host of processes.

MANY and varied applications of alkyd resins have been described,[4, 13] yet there are a number of interesting and unusual uses for these synthetics which do not lend themselves to simple classifications. Such uses are the subject of this discussion.

The versatility of alkyd resins arises from the fact that by varying the type and proportions of the basic ingredients, and especially by the use of various modifying agents (*e.g.*, oils and their fatty acids, natural resins, or other synthetic resins), it is possible to create resins with properties desirable in or essential to the specific application contemplated. Experience has enabled manufacturers to prepare tailor-made alkyds.

Technically speaking, alkyd resins are made by the chemical combination or reaction between a polyhydric alcohol and a polybasic acid. A number of alcohols and acids are available and have been used for such purposes. Of the polyhydric alcohols, glycerine is by far the most widely used, while among the organic acids, phthalic anhydride is the most outstanding. As Whitescarver[14] has remarked, the picture may be simplified by stating that the usual alkyd resin is a chemical combination of glycerine, phthalic anhydride and oil fatty acids.

The alkyd resins find their major uses in the formulation of coatings and finishes.[1-3] Aside from standard applications on wood, metals, leather, paper, cloth, and other surfaces, alkyd resins have been advocated for use on other, quite different, materials. De Navarre,[16] for example, has remarked that there is no reason why resins like alkyds should not be used in the formulation of finger-nail lacquers.

Going to another extreme, one finds an alkyd resin recommended as the basis for forming enteric coatings on pill tablets, capsules and similar medicinal products. According to the patent,[17] a stearic acid-modified glycerine-phthalic anhydride condensation product is suitable for such application.

SHEETS AND FILMS

Because the coatings formed by alkyd resins are noted for their toughness and durability, it is not surprising to find that attempts have been made to use these qualities for the production of alkyd resin sheets and films. One patent[18] of interest in this connection describes a method for making continuous, smooth-surfaced, flexible, cured alkyd resin films. Essentially, the method provides for spraying a continuously moving carrier belt (so surfaced as to prevent the permanent adhesion of the applied film) with a thin film of uncured liquid alkyd resin, suitably modified to provide a flexible finished product. The film on the belt is then heated by radiant heat to such a temperature as to convert the alkyd resin to the cured state after which it is removed.

Aside from the obvious applications of such films, alkyd sheets, reinforced with paper cloth, have been advocated as carriers of grinding particles in the manufacture of flexible abrasive belts and disks.[19] Also pertinent is a method described[20] some years ago for employing an alkyd resin of the glycerine-phthalic acid type to make watch glasses.

The bonding properties of alkyd resins have found frequent use, not only in the production of "safety" glass,[21] but also in the manufacture of various laminated products, electrical insulating materials, linoleum, gaskets, brake linings, and many other items.[22] This binding ability has frequently been employed in certain very highly specialized products, for example, in making fillers for cracks and crevices. One European authority[23] lists alkyd resin varnishes among suitable binders for the fillers used in making these putty-like substances. Similarly, a meltable alkyd resin is used as a binder for pigments; the combination is formed into solid implements for marking hot surfaces like ingots or billets.[24]

Novel, but highly practical is the employment of an alkyd resin in making a non-hygroscopic, water-repellent match that will light even when wet. As explained in the patent,[25] an igniting material is used with a bulk filler and with a combined hardener and binder formed from the reaction of glycerine with phthalic anhydride.

The ability of alkyd resin compositions to impregnate and protectively coat porous materials with durable finishes has found extensive uses in treating cloth, paper, leather and other fibrous substances. Highly specialized, however, is the use of such resins in the production of styluses or needles for sound-reproducing machines. As described in the patent,[26] granted some years ago, the process consists of impregnating bamboo or similar cellulosic fibre styluses with an alkyd resin derived from materials like glycerine and phthalic anhydride, with or without the use of drying oil modifiers. After impregnating the "needle," the resin is hardened. Improved tone and wearing qualities are said to result.

Of related interest is a method for preserving and improving gut for tennis rackets and similar uses by treatment with synthetic resins. As pointed out in the patent,[27] which described details and examples of suitable treatment, condensation products from glycerine and phthalic anhydride are employable for this purpose.

INSECTICIDES

A new development, but one with important potentialities for the alkyd resins, is the increasing use of these synthetics in the formulation of insecticides. They serve various functions in these products, and attention was drawn to such utility in a report published in 1941, by Ark and Tompkins[28] on the efficacy of any alkyd solution in destroying the common red spider (*Tetranychus telarius L.*), a plant pest notoriously difficult to control.

In the course of investigations, these workers had noted that when a 2 per cent glyceryl phthalate alkyd resin in water was applied to plants heavily infested with red spiders, these pests quickly disappeared. Microscopic examination of infested leaves showed large numbers of dead red spiders in all stages of develop-

ment and masses of spiders' ova which had turned yellow and had become shriveled after five days. Further study of the glyceryl phthalate resin showed that it possesses remarkable insecticidal efficiency. A 2 per cent solution proved optimal; concentrations less than 2 per cent, but not less than 1 per cent, were effective on adults but not on ova; above 2 per cent the leaf margins were burned.

Tests were made under greenhouse and field conditions upon a large number of trees, shrubs and plants to confirm the efficacy of this spray. It was noted during these studies that an unidentified species of very minute, white mite occurring on ivy and China asters and a begonia mite were also successfully controlled by a single application of the 2 per cent solution of alkyd resin.

In summarizing, Ark and Tompkins not only stress the insecticidal action of the alkyd, but also point out that its additional advantages include freedom from disagreeable odor, lack of spray residue on the leaves and a high degree of spreading capacity. Only one application is necessary.

A year earlier, a patent[29] had been granted which described the use of a special alkyd resin in making insecticidal sprays. Thus, sprays suitable for use on plants and other applications are described as containing a resin made from glycerine and phthalic anhydride plus other acids selected from a group of organic compounds with specified characteristics.

Alkyd resins also appear to be useful as agents for making insecticidal emulsions. Osburn and Mathis[30] mention the use of petroleum oil emulsified with glyceryl phthalate alkyd resin in comparative studies of the efficacy of sprays to control Florida red scale on grapefruit and orange trees. Specific examples of such emulsifying utility are given by Carlson and Yothers[31] in their description of methods of making concentrated trunk sprays for destroying codling-moth larvae. Their report outlines three methods of preparing such sprays consisting of 4, 6-dintro-ortho-cresol and stove oil. The first or "heating" method in as follows: Dissolve 3 pounds of the cresol in 4.5 gallons of oil by heating to 160° to 170° F. Then add 10.5 gallons of oil and 0.5 pint of oil-soluble emulsifier such as B-1956 (a glyceryl phthalic alkyd resin) or Tergitol 7 (a sodium sulfate of a higher secondary alcohol). In the second or "acetone" method, 3 pounds of the cresol are dissolved by shaking with 4.5 pints of acetone and then 0.5 pint of emulsifier is added. This solution can be used at once by adding 15 gallons of oil and the desired amount of water or it can be stored until needed. To make the third or "mayonnaise" type of concentrated emulsion, dissolve in 2 gallons of water 0.5 pound of an emulsifier such as sodium lauryl sulfate or 0.5 pint of either of the above-mentioned emulsifiers. To this slowly add the oil solution of the cresol prepared by the first heating method, or the oil and the concentrated acetone solution of the cresol, while agitating with a power mixer. This should result in a thick creamy paste, which with 82 gallons of water produces 100 gallons of diluted spray.

Though probably not a frequent application, it is interesting to note the use of alkyds in making special lubricants. Illustrative is a patented process[32] for making solid lubricants suitable for use with valves. To prepare such products, use is made of a water-insoluble metal soap of a thickened fixed oil such as an aluminum soap and a glyceryl phthalate type alkyd resin which is insoluble in water and in petroleum hydrocarbons.

Of associated interest is the use of several special, modified alkyd resins as demulsifiers for petroleum emulsions. Several patented products of this type are cited by Berkman and Egloff[33] in their recognized text on emulsions. One such series of demulsifiers is mentioned as being derived from castor oil, phthalic anhydride and glycerine as basic components.[34] Another cited patent[35] claims as a demulsifier a reaction product obtained from oleic acid, glycerine and phthalic anhydride. The mixture is stirred and dry air is blown through it at 185°-200°C. until the desired product is formed.

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Tonnagewise, the use of alkyds as coating materials is by far the most important.

NO. 2 in a series on
INFORMATION SOURCES FOR CHEMICAL MARKET RESEARCH

The Bureau of Foreign and Domestic Commerce

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ONE OF THE MANY GOVERNMENTAL AGENCIES which provide important data and information for chemical market researchers is the Bureau of Foreign and Domestic Commerce in the Department of Commerce. This month Mr. Lawrence describes the manifold activities and publications of the Bureau. Next month he will report on the Bureau of the Census.

ORGANIZATION

DATA pertinent to every important commodity and to every important commercial nation are continuously studied by the Bureau of Foreign and Domestic Commerce. Factual information, analyses, and interpretations are published in its periodicals and numerous special reports, or made available by correspondence and consultation. The Bureau also advises other government agencies on problems and needs of business.

The Division of International Economy studies all phases of business conditions and commercial laws of foreign nations and assists American importers and exporters with such information as output, prices, foreign exchange, tariffs and trade marks.

The Division of Industrial Economy includes the *Chemical Unit* (C. C. Concannon, chief) and the *Drugs and Pharmaceuticals Unit* (T. W. Delahanty, chief), which are well known to chemical market researchers, and 16 other units such as Leather, Pulp & Paper, Fats & Oils, and Rubber. For every commodity and industry of importance, they study both foreign and domestic demand, supply and price situations, transportation, and pertinent commercial relations, and cultivate close contact with trade associations. They maintain exhaustive lists of commercial information sources.

Staffs of these commodity units, which include nationally known authorities in many fields, are continually issuing comprehensive reports, bulletins, and surveys covering hundreds of chemical products and the industries which use them or supply their raw materials.

The Distribution Division studies all phases of marketing methods and channels of distribution. The Small Business Division, which works closely with the field offices and collegiate business schools, studies the finance, credit, merchandising and other problems of small business.

The Research & Statistics Division prepares and analyzes current business statistics and indexes covering manufacturing, foreign trade, wholesaling, and national income.

The Division of Commercial & Economic Information maintains massive files of data on foreign buyers and distributors and is also responsible for editing the Bureau's publications.

The *Field Offices* of the Department of Commerce, strategically located in 26 large cities, have excellent files of government reports (including scarce, out-of-print issues) and render effective assistance in getting information from Washington. They also furnish the central offices of the Department with continuous first-hand pictures of economic conditions in their territories. They have intimate knowledge of problems and needs, and literally "bring the Department" to the businessman.

Services and publications of the Bureau are described in its report, "The Businessman's Bureau" (1944), and in "The Bureau of Foreign and Domestic Commerce —How It Can Help You," a series of articles by A. R. Hahn in *Sales Management*, September-November, 1943.

CONSULTATION AND SPECIAL SERVICES

The Bureau supplies business with a great deal of information through correspondence and to a lesser extent through interviews. Both the advice and information supplied by the Bureau's experts have proved invaluable to many chemical market surveys.

The Bureau has in its files informa-

A few of the useful publications of the Bureau of Foreign and Domestic Commerce.

The writer acknowledges with gratitude the assistance and advice of Mr. J. N. Taylor, Miss A. H. Swift, Mr. E. A. Chapman, Miss Corrie Cloyes and others of the Bureau's staff who have kindly contributed to this manuscript.

Chiefs of the units of especial interest to the chemical industry: T. W. Delehanty (left), Drugs and Pharmaceuticals; C. C. Concannon (center), Chemicals; and Charles E. Lund, Foodstuffs, Fats and Oils.

tion withheld from publication because of wartime restrictions which can be made available upon request to responsible American firms.

TRADE ASSOCIATION SERVICE

The particularly close contact maintained between the Bureau and trade associations has been built up over a period of years. The Trade Association Unit has greatly facilitated cooperation between the war agencies and these organizations of businessmen. This Unit has an exhaustive file on trade associations and continually supplies them with information and advice on their problems.

POSTWAR PROGRAM

The Bureau is pledged to a postwar goal of presenting a "statistical and factual program of maximum usefulness" and has ambitious plans for extending the breadth and increasing the speed of its statistical work. Currently, the Bureau is analyzing and sifting the large body of wartime statistical data, with a view to extracting and releasing as much of it as appears useful to business and industry.

PUBLICATIONS

PERIODICALS

Survey of Current Business (monthly) includes over 2,000 statistical series on production, orders, sales, shipments, trade, stocks, prices, employment, and finance, as well as articles analyzing major industrial trends. The statistical records, index numbers, charts, and text of the "Survey" give businessmen and government officials current and comprehensive answers to their continual question, "How's business?"

Hundreds of statistical sources are listed in footnotes in the "Survey."

Survey of Current Business—1942 Supplement gives the historical record of the statistical series carried in the regular monthly issues of the survey for the years 1919-1942. It carries all revisions of the data, many of which cannot be shown in the monthly issues, and provides complete descriptive notes explaining the precise coverage and import of each series. In addition, the January or February issue of the Survey carries an annual economic review of the preceding year.

There is also a condensed weekly supplement.

Domestic Commerce (monthly) presents articles on important business problems and includes a check-list of new books and reports of interest to market researchers. Some of its more recent articles on chemicals are listed in a later section of this report.

Foreign Commerce Weekly carries both feature articles on timely international subjects and current news on countries and commodities and will presently resume its listing of "Foreign Trade Opportunities." It also lists new books and reports and carries late airgrams from the United States Foreign Service.

The Field Offices issue three supplementary publications: *Foreign Trade Letter* (weekly), *Regional Commerce Bulletin* (biweekly), with announcements of new publications and events, and *Quarterly Reports by Business Consultants* which are special research studies on domestic business.

The statistical reports on imports and exports, published for many years by the Bureau of Foreign and Domestic Commerce, have been transferred to the Census Bureau. These are: *Foreign Commerce & Navigation of the United States* (annual), *Monthly Summary of Foreign Commerce*, and supplementary mimeographed *Statistical Statements* (monthly). The *Statistical Abstract of the United States* (annual), which presents hundreds of condensed statistical tables and covers many fields, has also been transferred to the Census Bureau.

Industry Reports, prepared during the war to furnish government agencies with foreign and domestic data on various major commodities, were first released for publication late in 1944. The first seven numbers included "Sugar, Molasses, and Confectionery," "Pulp and Paper," "Chemicals," and "Construction and Construction Materials." These reports are issued monthly or quarterly.

World Trade Notes on Chemicals & Allied Products was published weekly from 1927 to 1940. *World Chemical Developments* published annually from 1933 to 1938, reviewed the status of the chemical industry in each important country. A 1944 report will be released soon.

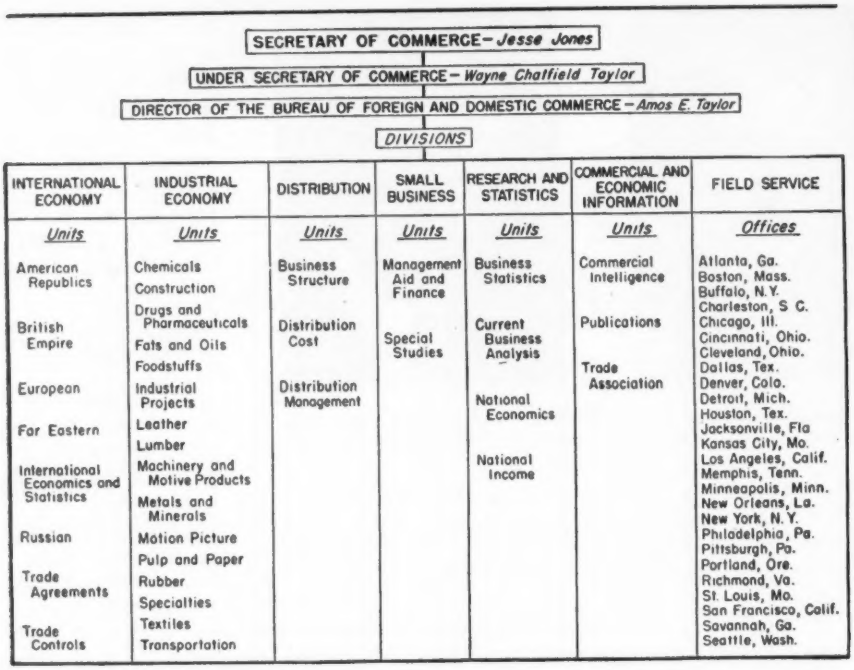
BUSINESS SERVICES AND REPORTS

Two well-known services recently resumed by the Bureau are the International Reference Service and the Industrial Reference Service, which present basic and current information in loose-leaf form.

The *International Reference Service* includes surveys of foreign market areas, foreign industrial development data, appraisal of transportation problems, and basic import, export, and shipping data. Twelve studies have been published, including "Doing Business with Russia," which proved so popular that it had to be reprinted several times. This service also presents materials formerly covered in the Foreign Commerce Yearbooks, an independent series (latest issue 1939), which annually reviewed the trade and industry of all commercial nations in one volume.

The *Industrial Reference Service*, suspended in 1941, consisted of 14 parts dealing with developments in the domestic and foreign commodity markets. Since resumption in 1945, issues of the Service have included two special surveys, "Chemical Trends and Developments" and "Synthetic Aromatics—Flavor and Perfume Materials," and a number of studies of Latin American chemical and drug markets. The first-named survey outlined the current position of each major chemical and chemical situation in principal foreign countries. The revived Service has also issued eleven new "Synopses of Information" on important chemicals (acetone, phthalic anhydride, butanol, lead arsenate, et al.) and a programmed series of other chemical and drug products is in preparation. These useful documents cover specifications, uses, shipping regulations, production methods, statistics on output, foreign trade, prices, and consumption and references to the trade literature.

The *Inquiry Reference Service*, set up in 1940 to handle miscellaneous requests, also issued a large number of mimeographed "Synopses of Information" on chemicals and drugs. Typical titles were "Industrial Alcohol" (1940), "Synthetic Organic Chemicals" (1941), and "Calcium Arsenate" (1944). These are being revised and reissued in the *Industrial Reference Service* as numbers in its "Part 2—Chemicals, Drugs and Pharmaceuticals." The *Inquiry Reference Service*



also includes a valuable mimeographed report series entitled "Basic Information Sources," with extensive bibliographies. An important number in this series was "Silk and Synthetic Fibers," 1942.

The exhaustive and elaborately indexed compilation "American Business Directories," issued in 1942, was also part of the Inquiry Reference Service. This Service was discontinued in 1945 when the *Industrial Reference Service* took its place.

County Basic Data Sheets, another recent addition to the Bureau's Services, covers selected counties in 48 states, presenting basic statistics on physical, population, housing, manufacturing, agricultural, and trade characteristics.

SPECIAL SURVEYS AND REPORTS

Market Research Sources, of which the eighth edition appeared in 1940, is an invaluable report. It describes the activities and provides a detailed check-list of publications of federal, state and local government agencies, also colleges, publishing houses, chambers of commerce, and other commercial organizations. As the several editions are not cumulative, searches for material published prior to 1937 must include the editions of 1938, 1936, 1932 and "Market Research Agencies, 1930."

The Bureau has published a number of series of reports, of which quite a few have been abandoned, suspended or merged. The Economic Series, 1938 to date, includes some 40 reports on financial and marketing subjects; e. g., "An Outline for Making Surveys" (1944), "Suggested Research Topics in the Field of Consumer Products," "Survey of University Business Research Projects," and "Foreign Trade Associations in the United States." The Market Research Series included the "Check-List for the Introduction of New Industrial Products."

The *Industrial Series* (20 reports) includes "Medicinal Products, U. S. Equivalents and Alternatives" (1945) and "Trade and Professional Associations of the U. S." (1942). The latter is a comprehensive directory with information on over 3,000 organizations, including data on their principal services to members. *Trade Association State Lists*, issued in 1944, covers 14,000 state and local associations and chambers of commerce. Both have detailed indexes.

The *Commercial Standards Series* comprises Spanish and Portuguese editions of U. S. commercial standards on various products.

Among discontinued series are *Trade Information Bulletins, Trade Promotion Series, Special Agents Series, Special Consular Reports, Domestic Commerce Series, Distribution Cost Series, Foreign Port Series,* and *Marketing Laws Series.* Among these is *Trade Promotion Series* 189, "Synthetic Organic Chemicals" (1938).

Markets After the War is a hypothetical projection on production in major industries necessary to provide a high level of national employment.

Industrial Market Data Handbook of the U.S. (1939, 907) presents Census of Manufactures data, by counties, on production and employment, etc. Also data on channels of distribution and manufacturing operation costs.

Consumer Market Data Handbook (1939, 464) presents information, by counties such as telephone and auto registration data.

The Potash Industry report, prepared and published in 1940 for the Department of Justice, is an example of the Bureau's service to other government agencies.

CHECK-LIST OF PUBLICATIONS

(1939 to date plus selected reports of earlier years)

NOTES ON ORDERING

If price is given, order from Superintendent of Documents, Washington 25, D. C., or from Regional Field Offices of the U. S. Department of Commerce, of which a directory appears at the end of this Check-List. Remittances should be made in cash or by check or money order payable to the Superintendent of Documents. On orders from foreign countries, prices are one-third higher, to cover postage. Orders should list series numbers as well as titles. Do not send stamps.

If price is not given, the document is usually free upon request to the Bureau of Foreign and Domestic Commerce, Washington 25, D. C., or the Regional Field Offices.

If out of print, the document may usually be consulted at the Bureau's Washington office, the Regional Field Offices, or at official depository libraries, and other libraries.

BUREAU ACTIVITIES AND PUBLICATIONS

1. The Businessman's Bureau (1944) (See also Hahn, A. R., The Bureau of Foreign & Domestic Commerce—How It Can Help You, *Sales Management* [Sept.-Nov., 1943].)
2. List of Selected Publications of the Bureau (1944). Out of print. Revised edition in preparation.

WEEKLY (W), MONTHLY (M), QUARTERLY (Q), and ANNUAL (A) PUBLICATIONS

3. Survey of Current Business (M) $2 per year (foreign, $2.75). Weekly supplements, free on request.
   Biennial Supplements, 50c (1942 latest issued). (See also "Record Book of Business Statistics" covering 1909-26).
   Part 2, Metals and Minerals, 10c.
   Part 3, Fuel, Automobiles, and Rubber, 10c.
4. Foreign Trade Letters (W).
5. Foreign Commerce News (W).
6. Construction News (M) Suspended, Sept. 1940.
7. Reports of Regional Business Consultants (Q).
8. Regional Commerce Bulletin (bi-weekly).
9. Foreign Commerce Yearbook (A, to 1939) $1.
10. Domestic Commerce (M, since May 1943), $1 per year (foreign, $1.40). Articles on chemicals and drugs include the following:
    Organic Chemicals in the Defense Program, Oct. 9, 1941.
    Creosote Supplies, Nov. 6, 1941.
    Ammonia, Dec. 10, 1942.
    Phosphorus, Dec. 17, 1942.
    Outlook for Chemicals in 1943, Feb. 4, 1943.
    Outlook for Drugs in the Postwar Period, June 3, 1943.
    Glycerin, July, 1943, and May, 1945.
    Insecticides, Dec., 1943.
    Vitamins, Dec., 1943.
    Plastics, Dec., 1943, and Feb., 1944.
    Phthalic Anhydride, Feb., 1945.
    Synthetic Flavors, Mar., 1945.
    Casein, June, 1945.
    Ammonium Nitrate, Oct., 1945.
    New Drug Products, Apr., 1944.
    Agar-Agar, July, 1944.
    Penicillin vs. Sulfa Drugs, Dec., 1944.
    Drug and Pharmaceutical Outlook, Jan., 1944, and Jan., 1945.
11. Foreign Commerce Weekly, $6.00 per year (foreign, $8.75). Articles on chemicals and drugs include the following:
    Papain from Pawpaw, May 30, 1942.
    Canada's Chemical Industry, July 25, 1942.
    Chilean Chemical Industry, Sept. 5, 1942.
    Quinine Postwar, Nov. 6, 1943.
    Menthol Situation, May 27, 1943.
    Paint Exports, Sept. 23, 1944.
    Swiss Chemical Industry, Dec. 2, 1944.
    Postwar Foreign Markets for Chemicals, Sept. 16, 1944.
    Fish Liver Vitamins, May 31, 1945.
12. World Chemical Developments (A, 1933-38). Out of print.
13. Chemical Developments Abroad (1939), Trade Promotion Series No. 211, 20c.
14. World Trade Notes on Chemicals & Allied Products (W, 1927 to 1940); consult at Bureau offices in Washington.
15. Summary of Foreign Trade of the U. S. (1939-1941), 1939 edition, Trade Promotion Series No. 215, 10c; 1941 and 1940 editions, free.
16. U. S. Trade with Western Hemisphere Countries (1943-1944); separate pamphlets for individual countries, free.
17. U. S. Trade with the Other American Republics (1942).

18. Principal Prewar Imports of Far Eastern Countries from Regions Outside Japanese-Occupied Asia (1944).
19. World Economic Review (A), successor to Commerce Yearbook (to 1937); Part 1, 10c; Part 2, 25c.

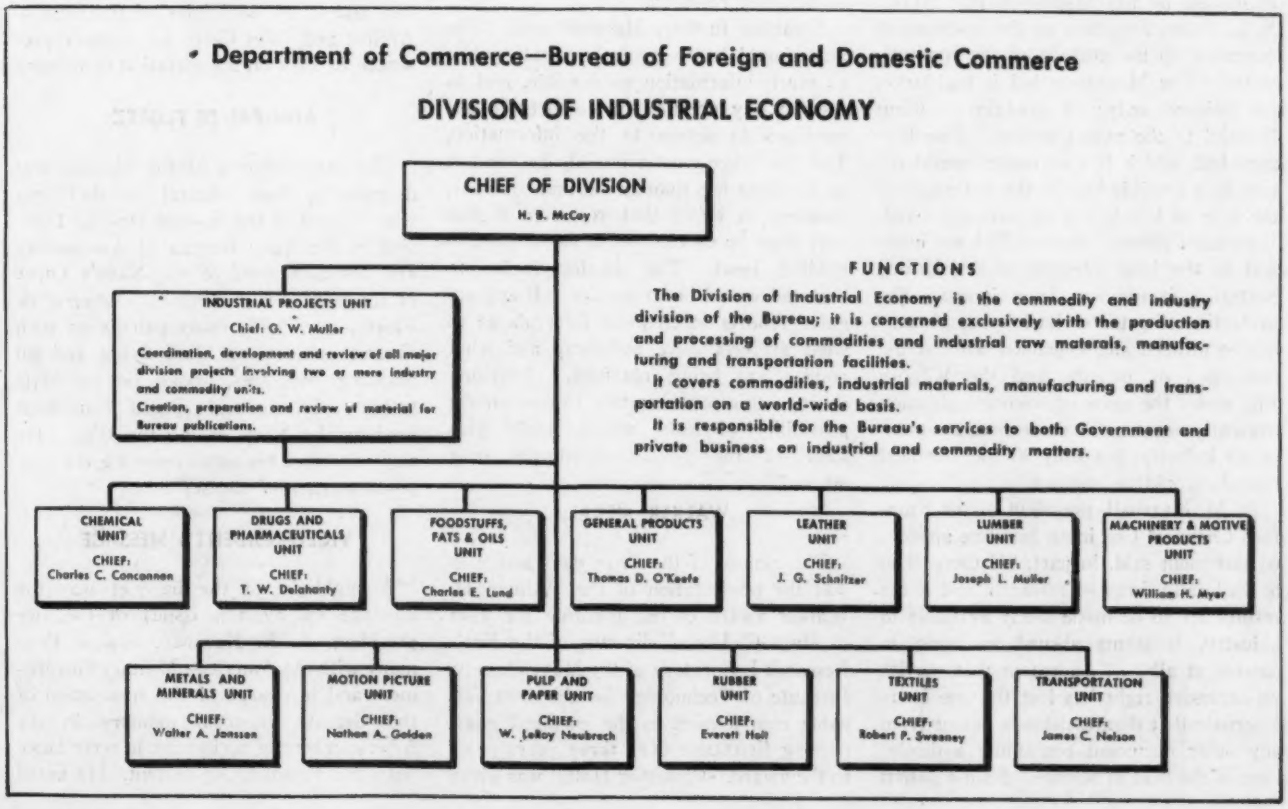
The following report series have been transferred to the Census Bureau (and will be covered in next month's article):

20. Foreign Commerce & Navigation of the U. S. (A to 1941), $2.50.
21. Monthly Summary of Foreign Commerce (to 1940), $1.25 per yr.
22. Statistical Statements on Imports & Exports (M to 1940); Schedule A—Statistical Classification of Imports into the U. S., 25c. Schedule B—Statistical Classification on Exports from the U. S., 25c.
23. Statistical Abstract of the U. S. (A).
24. Industry Reports (free):
    Sugar, Molasses and Confectionery
    Pulp and Paper
    Lumber
    Domestic Transportation
    Chemicals and Allied Products
25. Inquiry Reference Service (Synopses of Information) (free):
    1942—Silk and Synthetic Fibers—Basic Information Sources.
    —American Business Directories
    1944—
    Anhydrous Ammonia
    Acetylene
    Benzol
    Borax and Boric Acid
    Calcium Carbide
    Calcium Arsenate
    Carbon Dioxide
    Cresols and Cresylic Acid
    Formaldehyde
    Hydrogen
    Industrial Alcohol
    Lactic Acid
    Lead Arsenate
    Methanol
    Naphthalene
    Nicotine and Nicotine Sulfate
    Nitrous Oxide
    Nitric Acid
    Oxygen
    Oxalic Acid
    Phenol
    Phosphoric Acid
    Pyrethrum
    Rotenone
    Sodium Sulfate
    Sulfuric Acid and Hydrochloric Acid
26. Industrial Reference Service:
    Volume I (Suspended, December 1941):
    1941—American Fertilizer Industry
    American Plastic Industry
    Analyzing Your Business from an Export Standpoint
    Candelilla Wax
    Carbon Tetrachloride
    Casein
    Chemical Raw Material Review for Spain
    Citric Acid
    Glycerin
    Potassium Chlorate
    Potassium Hydroxide
    Sodium Nitrate
    Synthetic Organic Chemical Industry
    U. S. Sugar Industry
    U. S. Trade in Inedible Molasses
    Volume III (Publication resumed, 1945):
    Available in Parts covering selected services and commodities.
    Part 2: "Chemicals, Drugs and Pharmaceuticals," $2 per yr., or 5c per report if ordered singly.
    Chemical Trends and Developments (No. 1)
    Demand for Chemicals and Related Products in Central America (No. 2)
    Organic Chemicals in Colombia (No. 3)
    Dominican Republic and Haiti as Markets for Organic Chemicals (No. 4)
    Synthetic Aromatics—Flavor and Perfume Materials (No. 6)
    Uruguay: Pharmaceutical Regulations (No. 7)
    Mexico: Pharmaceutical Regulations (No. 8)
    Chilean Plastics Market (No. 11)
    Paraguay: Regulations Governing Pharmaceuticals and Toilet Preparations (No. 14)
    Uruguayan Organic Chemicals Markets (No. 15)
    The Paint Industry of Chile (No. 16)
    The Paint Industry of Cuba (No. 19)
    Synthetic Organic Chemicals in Brazil No. 20)
    Cuban Market for Organic Chemicals (No. 21)
    Mexico as a Producer and Consumer of Plastics (No. 22)
    Cuban Market for Plastics (No. 25)
    Peruvian Plastic Market (No. 26)
    The Spanish Potash Industry (No. 28)
    Mexican Paint Market (No. 29)
    The Paint Market in Ecuador (No. 32)
    Also in Volume III, Part 2, Synopses of Information:
    Acetone
    Butanol
    Calcium Arsenate
    Carbon Tetrachloride
    Casein
    Chrome Green
    Creosote Oil
    Glycerin
    Lead Arsenate
    Phthalic Anhydride
    Potash Fertilizer Materials
    Potassium Hydroxide (Caustic Potash)
    Sulfuric Acid
    Synopses in Preparation:
    Balsam Tolu
    Bleaching Powder
    Calcium Hypochlorite
    Carnauba Wax
    Cellulose Plastics Materials
    Chlorine
    Copper Sulfate
    DDT
    Digitalis
    Ipecac
    Nux Vomica
    Pyrethrum
    Rosemary Oil
    Rotenone-Bearing Roots
    Spike Lavender
    Sulfanilamide
    Tartaric Acid
    Urea
    White Arsenic
    Volume III, Part 5:
    Foodstuffs, Fats and Oils (6 reports)
27. International Reference Service
    Volume II (Publication resumed, 1945) $2 per year, 5c per report if ordered singly.
    Colombia (Foreign Commerce Yearbook Country Series) (No. 1)
    Taxation of Income, Personal Property and Excess Profits in Colombia (No. 2)
    Preparing Shipments to Bolivia (No. 3)
    Effects of the War on Brazil's Foreign Trade (No. 4)
    Preparing Shipments to Chile (No. 5)
    Preparing Shipments to Ecuador (No. 6)
    Living and Office-Operating Costs in Colombia (No. 7)
    Doing Business with Russia (No. 8)
    Economic Situation in Cuba (No. 9)
    Portugal (Foreign Commerce Country Series) (No. 10)
    Living and Office-Operating Costs in Ecuador (No. 11)
    Preparing Shipments to Peru (No. 12)
28. County Basic Data Sheets Series
    (Selected Counties.) Separate pamphlets for each of the states are available on request from the Bureau of Foreign and Domestic Commerce and Department of Commerce Field Offices. (In ready reference form, these present significant statistical information available for certain counties, parishes, and independent cities in the United States. The units selected are those which enclose or are a part of metropolitan districts or industrial areas. Data are based upon published reports of the Bureau of the Census and other Governmental agencies.)

SPECIAL SURVEYS AND REPORTS

29. Market Research Sources, Domestic Commerce Series No. 110; 1940. Out of print. No plans have been made for the preparation of a new edition. Earlier editions (not cumulative), 1938, 1936, 1932, and Market Research Agencies, 1930.
30. Price Sources, 1931 (Compiled by Dept. of Commerce Library), $1.10; available from the Supt. of Documents, Washington 25, D. C. (only about 35 copies left in stock).
31. Foreign Trade (Basic Information Sources); 1944.

(Turn to page 157)



Speakers table at the annual banquet, Tuesday, December 18. Left to right: James A. Vail, incoming president; Rear Adm. Luis de Florez, the principal speaker; R. E. Wilson; and L. W. Bass, outgoing president.

First Postwar AIChE Convention

EDITORIAL STAFF REPORT

FREEZING COLD, resumption of plant visits and a record-breaking turnout of about 1300 marked the first postwar convention of the American Institute of Chemical Engineers at Chicago, December 16-19.

GROWING from a report of the Institute's Patent Committee, a vote of approval was given to legislation as expressed by the Magnuson bill, S1285. S. L. Tyler, Secretary of the Institute, in summing up the attitude of the Institute, stated, "The Magnuson bill is legislation for science only; it contains nothing harmful to the patent system. The Kilgore bill, which is also under consideration as a possible law, is the antithesis of the type of legislation we have approved. It contains patent features which are inimical to the best interests of the United States as it removes from industry the protection of patents. Basic research cannot be utilized and expanded without the protection of patents, and the Kilgore Bill, under the guise of science legislation efficiently negates this protection. Progress in all industry, not only in the chemical branch, would be stopped."

A. M. Marshall, president of the Rumford Chemical Co., in an Institute approved statement said, in part, "If there is to be Federally financed research, and if the results are to be made freely available to industry, it seems absurd to bring in patents at all . . . . a patent that carries no exclusive right has lost the one characteristic that distinguishes a patent from any other document containing a disclosure in the field of science. Such a patent is not a grant, but simply a publication, and it is by no means the best medium in which to publish the results of Federally financed research."

Speaking further, Marshall said, "The aim should be to give the whole public as much information as possible, and to prevent any creation of competitive advantages in access to the information. The disclosure cannot feasibly be handled on anything less than an out and out basis, meaning in effect that research of this sort must be carried on in the proverbial goldfish bowl. The simplest means to that end would be to require full and regular reports at frequent intervals as to what projects were underway and what results are being obtained. Anything short of this seems certain to contain the possibility of leaks which would give some of the public advantages over others."

WALKER MEDAL

The climax of the three days activities was the presentation of the William H. Walker award of the Institute for 1945 to Hoyt C. Hottel, director of the Fuels Research Laboratory of the Massachusetts Institute of Technology for the most valuable contribution to the chemical engineering literature over three years prior to the award. Professor Hottel was given the award in recognition of a paper on radiant heat transmission from water vapor which was prepared with R. B. Egbert in 1942. Professor Hottel received the award at the annual banquet on December 18.

At the same meeting the new William H. Walker junior award was presented to R. R. White of the University of Michigan and C. H. McKinley of the General Aniline and Film Corp. for a paper presented in 1944 on the nitration of toluene.

ADMIRAL DE FLOREZ

The main address at the banquet was delivered by Rear Admiral Luis de Florez who is chief of the Special Devices Division of the Navy Bureau of Aeronautics and assistant chief of the Navy's Office of Research and Invention. Admiral de Florez, who holds many patents on such diverse subjects as blind flying and oil cracking processes, spoke on synthetic training devices and special equipment used by the Navy during the War. He also expressed his views opposing the proposed merger of the services.

VICE-PRESIDENT'S MESSAGE

A highlight of the banquet was the message (p. 59, this issue) of the vice president, A. B. Newman, now in Germany with the American Military Government and in charge of the restoration of the German chemical industry in the American zone of occupation in accordance with the Potsdam Agreement. He noted

the grievous condition of the German industry, laying particular stress on the lack of fertilizer ingredients, nitrogen and phosphorus, for the coming crop season and the difficulties attendant to the alleviation of this situation. It was transmitted by press radio and read by L. W. Bass.

NEW OFFICERS

In the line of business James G. Vail, vice-president and chemical director of the Philadelphia Quartz Co., who has previously served as vice-president and director of the Institute, was elected to act as president for the coming year. He succeeds Lawrence W. Bass, director of the Air Reduction Co. and director of research and development of U. S. Industrial Chemicals, Inc.; C. M. A. Stine, vice president and director of E. I. du Pont de Nemours and Co., will serve as vice-president.

Warren L. McCabe, head of the Department of Chemical Engineering, Carnegie Institute of Technology; John H. Perry, chemical engineer of E. I. du Pont de Nemours Co. and editor of the Chemical Engineer's Handbook; Joseph K. Roberts, director of research of the Standard Oil Co. of Indiana; and C. G. Kirkbride, professor of chemical engineering at Texas Agricultural and Mechanical College were elected directors at the same time.

TECHNICAL PAPERS

Among the varied topics discussed in the papers presented, including symposia on dust collection and materials of construction, were the manufacture of hydrogen, butadiene purification, the production of styrene from ethylene and benzene, discussions of reactor design, multicomponent distillation, heat transfer, fluid flow and spray drying.

HYDROGEN

R. M. Read of the Girdler Corp. discussed the six processes for the manufacture of hydrogen that are in use at the present time in this country. These six include:

1. Electrolysis of water.
2. Steam-iron process.
3. Steam-water gas process.
4. Steam-hydrocarbon process.
5. Steam-methanol process.
6. Thermal decomposition of hydrocarbons.

Mr. Read stated that the electrolysis of water was used a great deal in Europe but only on small scale installations in the United States. He further noted that the present production of hydrogen in the United States amounts to about five billion cubic feet per month, three billion cubic feet per month being utilized for the manufacture of synthetic ammonia. Most of that used for synthetic ammonia is supplied by the steam-water gas process or the steam-hydrocarbon process.

The steam-methanol process is a recent development designed to provide a portable source of hydrogen for use by the armed forces.

Upon questioning after his talk Mr. Read noted that the electrolysis of water would probably be the most economical process for demands below five thousand cubic feet per hour; the steam-iron process being the most economical if the demand did not exceed fifteen thousand cubic feet per hour, while the steam-water gas and the steam-hydrocarbon processes were competitive for demands of the order of five hundred thousand cubic feet per hour.

ISOMERIZATION

Details were given for the use of the fluid salt catalyst consisting of anhydrous aluminum chloride dissolved in antimony trichloride together with hydrogen chloride. The isomerization is carried out in an entirely continuous manner with continuous rejection of the spent catalyst and continuous catalyst makeup, maintaining the catalyst at a constant level of activity and thus producing a uniform product. The water and sulfur content of the feed must be low and no olefinic materials are allowed. In addition to the isomerization of butane, the isomerization of hexane fractions is briefly summarized. It is of interest to note that the largest percentage of the isomerization units in the various petroleum plants in this country utilize this process for the preparation of isobutane for use as an intermediate in the formation of aviation fuel.

BUTADIENE

The development of the process for the purification of butadiene by use of an ammoniacal cuprous acetate solution as a selective solvent for the butadiene in mixtures with other hydrocarbons was described by C. E. Morrell of the Standard Oil Co. Mr. Morrell further noted that

Plant visits, a feature of all prewar meetings, were resumed. Above: buses about to leave for a visit; below: a group leaving one of the buildings of the Corn Products Refining Co.

At the right, Hoyt C. Hottel receiving the William H. Walker Award from L. W. Bass; on the left, C. H. McKinley and R. R. White accept their Certificates of Award for the new William H. Walker Junior Award.

55 per cent of the installed butadiene purification capacity from petroleum sources utilized this particular process. He further noted that the acetylene content of the hydrocarbon mixtures, while more soluble than the butadiene was removed by selective stripping, giving a high purity butadiene product.

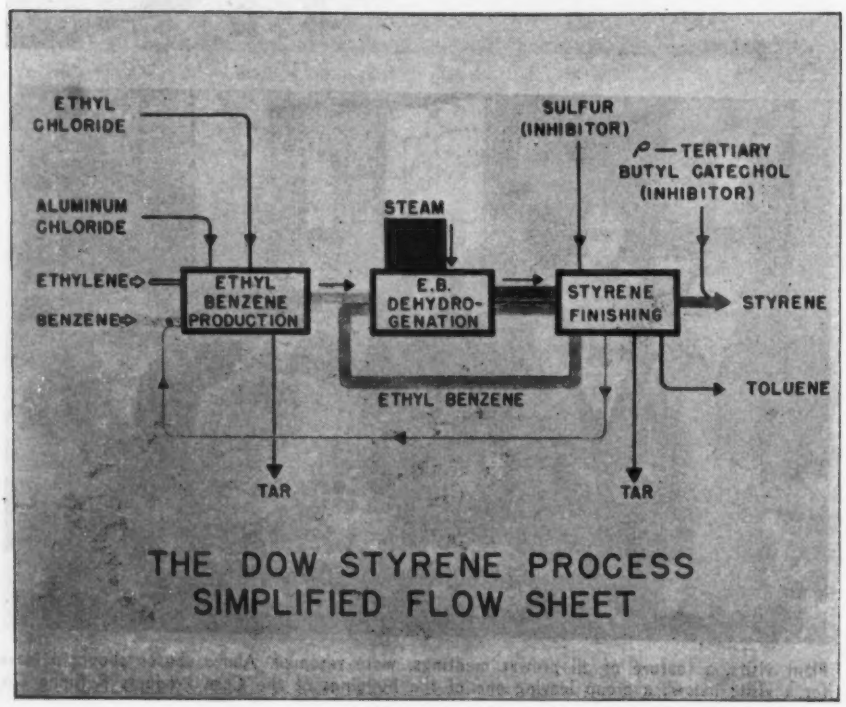
LIGHT HYDROCARBONS

The recovery and separation of high purity ethylene from a gaseous mixture rich in olefins and containing large quantities of hydrogen and methane was given in a paper by A. W. Pratt and N. L. Foskett of Stone and Webster Engineering Corp. The plant includes a solid absorbent to dehydrate the gases, multi-stage compression to 600 pounds per square inch gas, demethanization at a reflux temperature of -130°F, followed by subsequent separation of ethylene and the other desired constituents by refrigeration to subatmospheric temperatures. Liquid ethylene is used as a refrigerant for temperatures down to —150° F, ammonia for temperatures down to —15° F and propane for temperatures down to 30° F.

STYRENE

The Dow process for styrene production, used in whole or in part by six of the seven styrene plants in the United States and Canada (producing about 90 per cent of the total styrene made in this country) was described by J. Ernest Mitchell, Jr.

The basic chemistry of this process consists of alkylation of benzene with ethylene in the presence of aluminum chloride to form ethylbenzene, followed by catalytic dehydrogenation of the purified ethylbenzene in the presence of steam to give styrene. This is outlined on the accompanying flow chart.



Mr. Mitchell noted that para tertiary-butyl catechol was added as a polymerization inhibitor to enable storage of styrene without loss, ethyl chloride being utilized to supply the hydrogen chloride required for mixing with the aluminum chloride alkylation catalyst. He further noted that the process used by the IG in Germany was much the same although they used more aluminum chloride and no hydrogen chloride and utilized hydroquinone as a polymerization inhibitor. He further added that there was little to choose between the two processes although it was his belief that there would be less maintenance for a plant utilizing the Dow process.

DUST COLLECTION

A resume of the fundamental principles of Cottrell electrical precipitation equipment was given by C. E. Beaver of the Research Corp. The Van Tongeren system of cyclonic dust collection was discussed by H. C. Dohrmann of Buell engineering Co. In this paper Mr. Dohrmann discussed the need for and many potential applications of dust collection equipment, eventually describing the multiple collectors used for catalyst removal from the off gases from the down flow type of fluid catalytic cracking unit. These collectors are installed inside of the reaction vessel. The factors influencing the collection efficiency of the Multiclone vane type were discussed by L. W. Briggs of the Western Precipitation Corp.

MATERIALS OF CONSTRUCTION

New developments in glass piping, Karbate materials, silicones, and synthetic rubber and plastics, as well as a discussion of the properties and fabrication of Fiberglas-reinforced plastics were the subject of discussion at the symposium on materials of construction which closed the meeting on Wednesday, December 19.

TECHNICAL MANPOWER DISTRIBUTION

Shown by Roster Figures

THE ORIGINAL task of the National Roster has been reversed. Today its job is to assist in the return of technical personnel from their war-time occupations, many of them obtained with the help of the Roster, to peacetime pursuits.

FIVE YEARS AGO the National Roster of Scientific and Specialized Personnel was created as a registry of the nation's technical talent to aid in their location and placement in war jobs. During these five years, the Roster has completed over 400,000 registrations, made 170,000 referrals, and assisted in placing approximately 50,000 people in important positions in the various war agencies and industries.

PRESENT TASK

At present the Roster is completely reversing the above by assisting in the return of these scientists and engineers to peace-time employment. Those being discharged from the armed forces will be informed of the placement services of the Roster at the separation centers and furnished with return postcards, application blanks, and lists of jobs that are open. Those not already registered will be furnished the necessary blanks and check lists for their registration. The records of these returning veterans are to be furnished to all employers who have placed orders, the applications and orders being matched to the employers' specifications. The placement services of the Roster are also available to those leaving their war-time occupations.

In this personnel reconversion program the Roster is not limited to the fields in which it has registrants, but it is prepared to undertake placement in practically all professional fields except in elementary and high school teaching.

RECORDS

To keep the records of the registrants up to date during this period of reconversion and on into more normal times, the Roster has begun to send out single-page blanks to obtain changes in employment, additional education and other accomplishments of the registrants during the interim period. At present these blanks are being mailed at the rate of 2500 per week in the order of original registry, and about three years will be required to complete this task. By this means the files of the Roster will have continual statistical value, which heretofore has not been available.

The total registration of the Roster as of June 30, 1945, is as follows:

Biological and Agricultural Sciences		23,530
Physical Sciences		
Astronomy	342	
Chemistry	60,932	
Geology and Geophysics	7,252	
Mathematics	9,893	
Meteorology	1,053	
Physics	9,867	
		89,339
Engineering Sciences		
Civil	46,283	
Electrical	39,012	
Mechanical	53,459	
Chemical	23,572	
All Others	34,352	
		196,678
Management and Administration		41,565
Social Sciences		27,655
Architecture and Planning		8,394
Foreign Languages		3,741
Total		390,902

The Roster records show that of a total of very nearly 61,000 chemists, there are not more than about 5,000 women, while only 59 women out of a total of 23,600 claim to be chemical engineers. The median age of chemists is 33.3 while that of chemical engineers 30.0. The age distribution in the two fields can be seen from the attached illustration.

The data covering extent of education of Roster registrants show the greater tendency of chemists to seek advanced degrees.

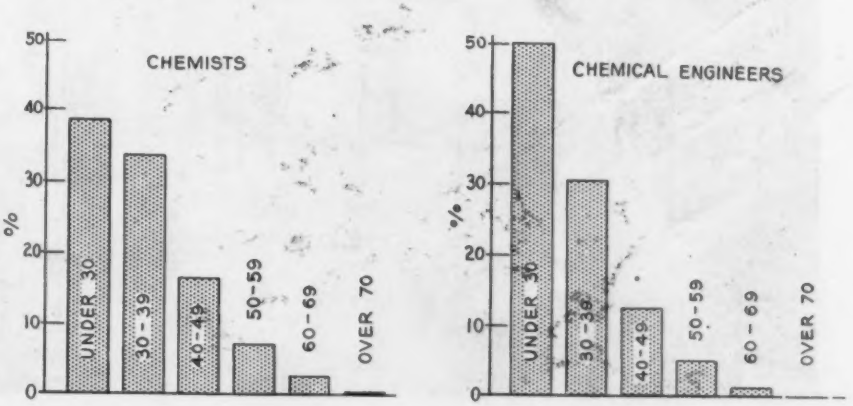
	Chemists	*Chemical Engineers*
Doctors	15.7%	3.8%
Masters	15.3%	11.7%
Bachelors	54.9%	71.0%
4 Years, No Degree	3.4%	5.1%
Others	10.7%	8.4%

The distribution by types of employment is somewhat similar in the two fields, but there are marked differences.

	Per 1,000 Registrants	
	Chemists	*Chemical Engineers*
Chemical Process Industries		
Industrial Chemicals, n.e.c.	183	225
Petroleum Refining	73	131
Drugs and Insecticides	50	20
Paints, Varnishes and Colors	41	17
Rubber Products	32	34
Plastics	28	38
Food Products	27	22
Explosives	23	40
Synthetic Rubber	22	25
Nonferrous Metals	22	22
Iron and Steel	22	18
Paper and Allied Products	17	26
Glass, Cement, Clay, Abrasives	16	19
Oils, Soap, and Glycerine	15	17
Textile Mill Products	14	3
Rayon and Synthetic Fibers	12	12
Other Industries		
Machinery	30	35
Instruments	22	15
Aircraft	14	14
Ordnance	10	10
Wholesale and Retail Trade	9	10
Contracting	none	16
Non-Profit Research Agencies	12	6
Private Practice	14	6
Government Agencies	79	82
Educational Institutions	176	26
All Others	37	111

In the above table it should be noted that the term, all others, is made up of the total engaged in those fields employing less than one per cent of the registrants, consisting principally of the smaller chemical industries and other non-chemical establishments.

A further service of the Roster has been the preparation, at the request of the United States Armed Forces Institute, of 53 leaflets providing such information as numbers in each field, opportunities, earnings, and educational requirements. It is estimated that 2.8-3.0 million copies of these leaflets will be distributed. Also, folders for employers and personnel officers, consisting of general descriptions of 67 fields have been distributed to the extent of 8,000-15,000 in each field. A still more complete series of descriptions of specialized fields is well on its way. In these, each section has been prepared and reviewed by several experts and the manuscript passed upon by at least one national society representing the profession. Fourteen of these handbooks have been printed and a like number are planned or are in preparation. A handbook on Chemistry and Chemical Engineering has been prepared and can be purchased from Superintendent of Documents, Government Printing Office, Washington, D. C.



Age distribution of chemists and chemical engineers registered by the Roster on June 30, 1945

TNT Industry Explodes Danger Myth

by PHILIP J. RAIFSNIDER, Process Specialist
Plum Brook Ordnance Works, Sandusky, Ohio

(Illustrations Courtesy Hercules Powder Company)

THE TNT INDUSTRY can boast of notable achievements in matters of safety and industrial health. The fact that the industry placed second among all industries in regard to safety reflects the care taken in both design and operation.

NOTABLE as was our TNT production record during the recent war, equally splendid was the safety and industrial health record prevailing in that industry as a result of taking cognizance of the product's explosive and toxic characteristics.

Recognizing the potential danger of a spreading explosive, TNT lines were constructed, insofar as possible, on the basis of standard explosives tables of distances. At Plum Brook Ordnance Work, houses on a line were spaced well apart and the lines were separated from each other. A further dispersion was effected by dividing the TNT lines into three manufacturing areas separated at least a mile and a half from each other.

Fire control was established by maintaining a full-scale fire department and by having all buildings equipped with automatic sprinkler systems. The efficiency of the sprinkler system was demonstrated during several tri house fires when the flames were completely extinguished in several minutes. Without a doubt, rapid control of fires prevented serious explosions.

Safety in operation and maintenance was supervised by a very capable safety department. This department indoctrinates each new employee with general safety rules applying to his job. Rules requiring the wearing of protective clothing and equipment were rigidly enforced, and an effort was made to encourage every new employee to think in terms of job safety. The specific safety rules applying to the new employee's job were given to him by his supervisor. The safety department rounded out the program by keeping a continual check on operations to see that the rules were being practiced. Violations were promptly reported, and disciplinary action was usually taken against the offending employee. In addition, the safety department checked on all major maintenance jobs to see that spark-proof tools were used in all buildings containing explosives and that the men working were alert to all possible hazards.

INDUSTRIAL HEALTH

Much interesting work was done on the industrial health problem. It must be remembered that TNT is quite toxic, and experience in the last war showed that TNT workers frequently became seriously anemic. In view of the large-scale manufacture in World War II, it became a vital necessity to have effective preventive and combative measures. TNT toxicity usually manifests itself by dermatitis and a lowering of the red blood count, and in extreme cases actual destruction of the liver takes place.

The TNT plants maintained excellent company hospitals, and all new employees were given thorough physical examinations. A new employee with a low blood count was not allowed to work in contact with the explosive. Every employee working on a TNT line had frequent blood counts taken. If a worker's blood count started to drop, he was removed from contact with the explosive and given a job elsewhere in the plant. It was found

The danger inherent in a spreading explosion is minimized by dispersal of individual units.

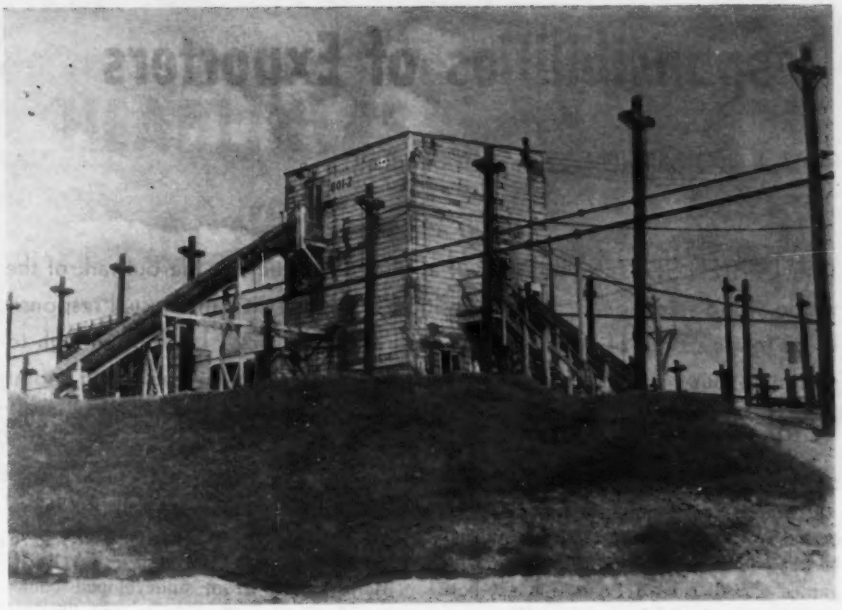
that individuals varied widely in their susceptibility to TNT toxicity. Most employees worked through the entire war period of production without ill effects, but those who were found to have symptoms of toxicity were quickly improved by isolation from further exposure and by the administration of liver iron concentrates. At P. B. O. W., as an aid to building resistance, vitamin concentrates were given daily to every TNT worker, and the wash house personnel received liver extract capsules in addition. This program forestalled mild cases of anemia before they became serious.

As might be expected, the wash house was the focal point for most of the trouble. The product was dried, flaked, and packed here; consequently, the possibility of contact with fumes and dust was great. To reduce the fume and dust hazards, the various operating units in the wash houses were equipped with aspirators and suction lines. Cleanliness in housekeeping was strictly enforced and periodical inspections were made by representatives of the safety department. Any line having an untidy wash house was compelled to improve its housekeeping immediately or be shut down.

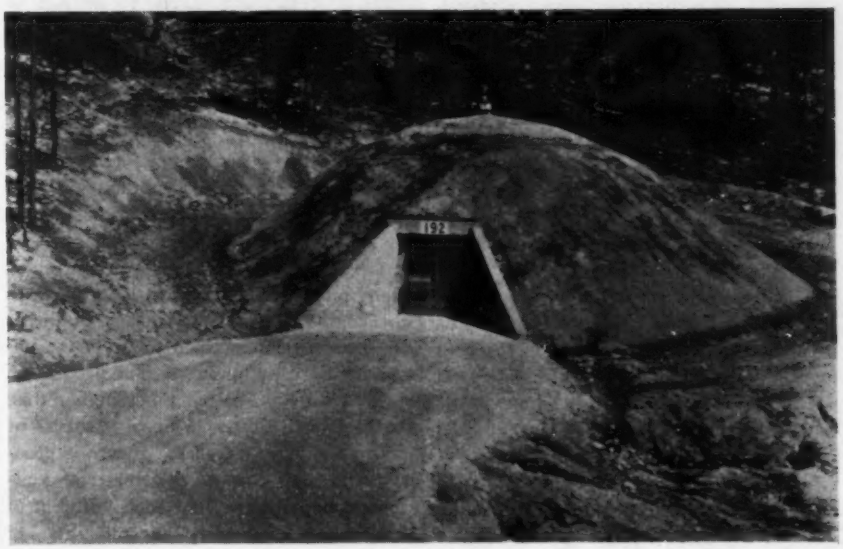
Operators were required to wear freshly laundered powder suits every day, and eating lunch in operating buildings was prohibited. Respirators were available to employees weighing and packing the TNT and as an aid in preventing absorption of the substance through the skin, operators were strongly urged to take showers after their daily shifts.

In reviewing the general aspects of TNT manufacture during the recent war, the chemical industry can be proud of the production and safety records set by its TNT plants. Considering the fact that the high explosives industry was of relatively negligible proportion in the period between the two world wars, the resulting problem was large, and at the same time safe, production was not easy to solve. The country at large can be thankful that a policy of complete cooperation existed among the various operating contractors, making individual discoveries available to all plants.

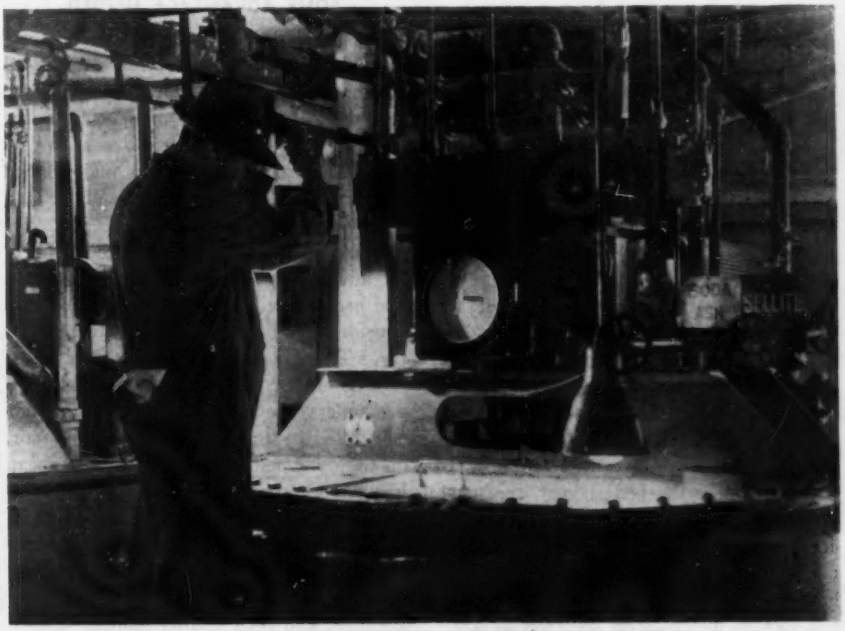
Respirators are a must for those employees engaged in weighing and packing TNT.



Escape chutes provide a fast exit from the mono-nitrating house in an emergency.



Storage safety is provided by dispersal of the magazines, such as that shown above.



Operating a wash tank in the wash house, which is the focal point of the most trouble.

Responsibilities of Exporters

by V. R. KOKATNUR, Chemical Consultant
New York, N. Y.

THE UNITED STATES FINDS itself at the end of the war the bulwark of the whole world's economy. Such a position is fraught with an unusual responsibility for acts both of commission as well as of omission. It is not enough to scrutinize our export engineering service from our own code and point of view. We must also consider it from the viewpoint of recipient nations.

THE WORLD is looking to United States for technological help, not only because we have excess capacity but also because the American engineers have gained a well earned reputation as those who possess the highest skill. War production has demonstrated our capacity for expansion as well as our resourcefulness.

Export engineering has been discussed competently before, but most of this discussion has been from the point of view of selling American engineering to foreign countries. There are two sides to every question and it is the intention of the author to discuss the other side—viz., the side of the country that wishes to import technology, and the implications of this on our export engineering.

The question occurs: Are we just going to pick up what little business comes to us or make a business-like effort to secure a market for engineering and technological services? We have as yet not come to believe that what is good on a domestic level is also good on an international level: If effort and sales promotion expense is good business in home economy it is equally good in export economy.

STANDARDS NOT UNIVERSAL

The values people place on their various endeavors depend on their history, traditions, and culture. It would be absurd, therefore, to apply our values in technology with the same emphasis in export engineering without considering factors responsible for the emphasis. Because labor-saving is considered important in this country is no criterion for using such machines and services in a country which is overflowing with labor. Technology may produce employment here, but the same may maintain unemployment indefinitely in a country like China or India.

We consider engineering the *sine qua non* in the United States because it means greater efficiency. Suppose we export the best aluminum engineering we know to Sweden, where the fuel is very expensive and power very cheap. Would our process be applicable to her resources? It is not enough that we merely export our best engineering; we must study the various factors which affect the overall economy. At times we must venture to insist on such study even at the cost of losing the client, for only thus will we lay a sound foundation for export engineering from a long-range view.

Industrialists from undeveloped countries like to buy the plants and "know-how" for established processes. Many such processes are likely to be out of date, since the life of a process in a rapidly changing technology is considered to be not more than ten years. There is also a possibility that the deficiency of certain vital resources, or of some conditions necessary to successful economic manufacture, may render our process impractical.

The author has operated a Solvay process plant in India, which was engineered from England, and has also inspected many plants. There was little wrong with the engineering as such in any of them; the main trouble seemed to lie in the unsuitability of the process. The production costs were eight to ten times higher than in the United States, primarily because of larger capital costs, choice of wrong process, and high cost of raw materials; although perhaps the deficiencies of skill of European engineering, unsuitability of sites, etc., contributed their share.

SOME ADVANTAGE NEEDED

It is obvious that, to have a sound footing, an industry must develop an over-all economic advantage. Otherwise, in the free world that is in the offing, where low tariffs, reciprocity, and free access to raw materials are demanded, an undeveloped country like China or India will be at a disadvantage.

Some of the tools to produce an overall advantage, such as technology, plant, and process, will have to be imported at a considerable cost to the importing country. The price of raw materials is usually determined in the international market unless they are privately owned or controlled by the government; but labor, on the other hand, which is usually cheap in such countries, is not an important item in modern production costs. Additionally, there will be possible disadvantages in transportation, lack of process novelty, deficiency of skills, inexperience in management, and poor quality control.

With such handicaps at the very beginning, infant industry is not likely to survive competition. The owners of the imported plant are not likely to feel grateful for this fine article of import when they realize that all their investment, together with years of effort, is a lost cause.

Does this not all add up to one thing—that if we are at all foresighted, we must study the factors that make for successful application of our knowledge to the conditions of the country buying our technology? If we think that a new process is necessary—and this would be so in many cases—we must insist that a new process be adopted. Although the initial cost of such service may be higher, it should really be cheaper eventually, when it is realized that the industry will have a firm foothold by being able to compete internationally and survive.

How is it possible for an American firm to evaluate the survival chances of the industry and technology it intends to export? Native engineers of adequate experience might be employed by the concern; or the concern may have someone already on the staff who has had such experience. At least, someone with first-hand information should be available for advice in order to prevent a misdirection of capital and energy.

VERSATILE ENGINEERING

All growth in initial stages requires versatility rather than specialization, and industrialization is no exception to this rule. People of the undeveloped countries tend to have a strong desire for possession and a disregard for values, and consequently they fail to judge and initiate what is good for them. All this not only increases our technological responsibility in export, but also decreases the importance of specialization as against versatility.

What has been said about versatile engineering is equally true about processes. A specialized process is not as useful to an undeveloped country as one that produces, or is capable of producing, more products or byproducts by a slight change in, or addition to the main plant. In the history of growing technology, an earlier process is generally found to have greater vitality and versatility than a later one that is more specialized and suited to the adult stage of a country.

HEADLINERS in the NEWS

JAMES G. VAIL, vice-president and chemical director of Philadelphia Quartz Co., has been elected president of the American Institute of Chemical Engineers.

EDWARD U. CONDON has been named director of the national Bureau of Standards. He has been associate director of Westinghouse Research laboratories since 1937.

JAMES McINNES, JR. of the Commercial Solvents Corp. has been named president of the Salesmen's Association of the American Chemical Industry, Inc.

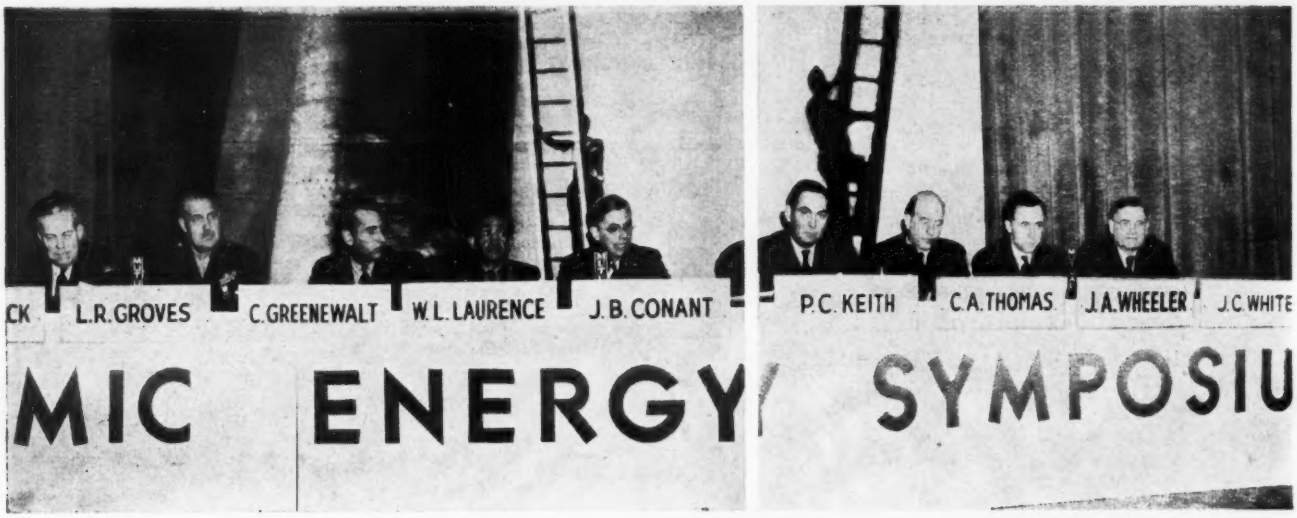
HOYT C. HOTTEL, director of fuels research at Massachusetts Institute of Technology, has been awarded the William H. Walker award for 1945 by the A.I.Ch.E.

HAROLD M. ALTSHUL, president of Ketchum & Co., Inc., has been elected chairman of The Drug, Chemical and Allied Trades Section of the N. Y. Board of Trade.

LEONARD STIEVATER, JR., formerly of Merck & Co. has been appointed technical director of the industrial chemicals division of McKesson & Robbins, Inc.

HARRY P. KRAMER of the Chicago Sanitary District has been named chairman of the Joliet Section of the A.C.S. The unit was originally established in 1940.

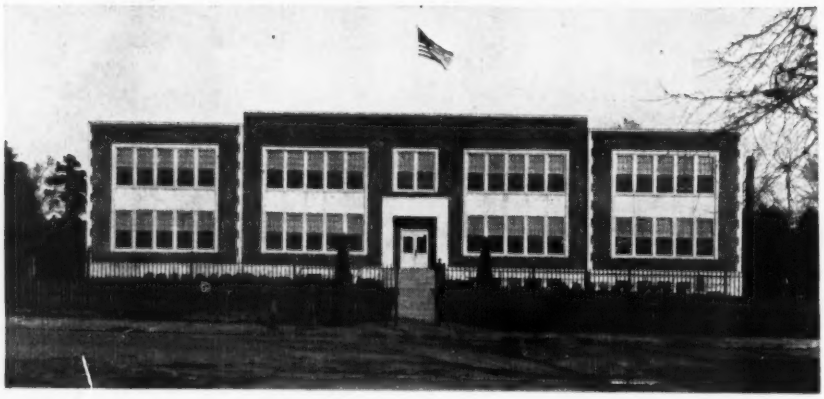
JOHN P. COE, general manager of Naugatuck Chemical and Synthetic Rubber divisions of U. S. Rubber Co., is one of five newly elected company vice-presidents.



Atomic Energy Debate

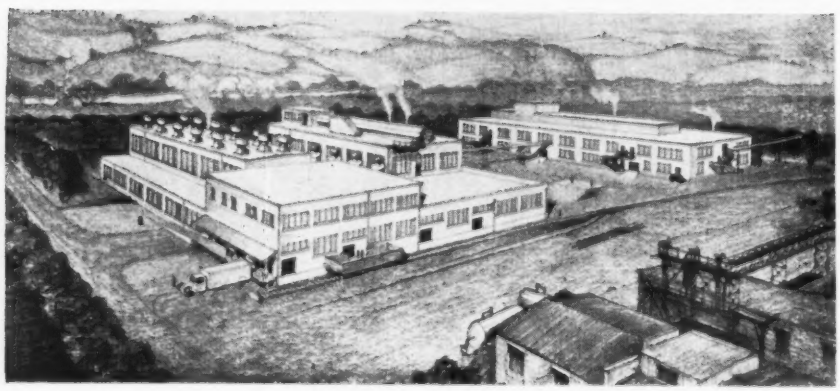
At the golden anniversary of the National Association of Manufacturers held at the Waldorf-Astoria, New York, in December, nine of the academic and industrial scientists who were connected with the development of the atomic bomb agreed that it is technically possible to build an atomic power plant at present. Seated in the usual order are: G. T. Felbeck, vice-president, Carbide & Carbon Chemicals Corp.; Major General L. R. Groves, director, Manhattan Project; C. H. Greenewalt, E. I. du Pont deNemours & Co., Inc.; William L. Laurence, New York Times; J. B. Conant, president, Harvard University, who acted as moderator of the symposium; P. C. Keith, president, Hydrocarbon Research, Inc.; C. A. Thomas, vice-president, Monsanto Chemical Co., and J. A. Wheeler, professor of Physics, Princeton University. Photographed at right is E. R. Weidlein, director of the Mellon Institute of Industrial Research, speaking on discoveries made during the war.

New Lab—New Plant



Solvay Expands

The Solvay Process Co., Nitrogen division, a subsidiary of Allied Chemical and Dye Corp., dedicated a new industrial chemicals research laboratory in the Highland Park section of Hopewell, Va., on December 14. C. K. Lawrence is director of the new unit.



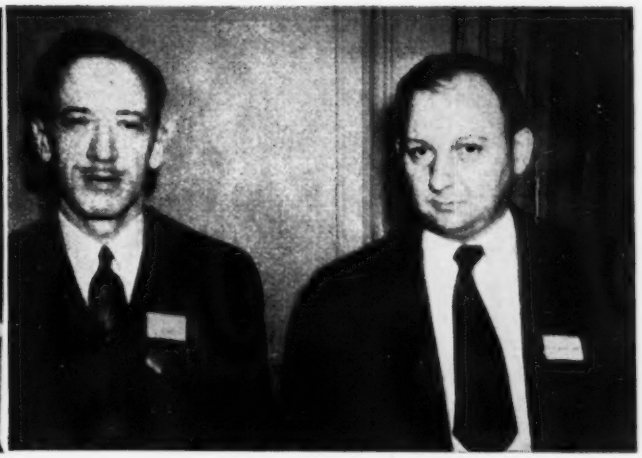
Merck Builds

Here is a perspective drawing of the new streptomycin units which Merck & Co., Inc. is erecting to supplement its present Stonewall plant facilities at Elkton, Va. The Elkton buildings, and complementary facilities at the company's Rahway, N. J., headquarters, are being constructed at a cost of $3,500,000 under the first WPB priority granted for a full-scale streptomycin plant.

A.I.Ch.E. MEETS IN CHICAGO

Chemical engineers from all over the country convened at the Hotel Stevens, Chicago, December 16 through 19, for the 38th annual meeting of The American Institute of Chemical Engineers. This was the Institute's first national meeting since the end of the war, and registration reached a record 1300. The program comprised 22 technical papers, including symposia on materials of construction and gas-solids separation.

Standing from left to right are: I. A. Kramer, chairman of the registration committee; J. E. Swearingen, chairman of the section and R. T. Griffith, secretary-treasurer.



Shown here are: R. C. Kintner, Illinois Institute of Technology, general chairman of local committees; and V. C. Williams, Northwestern University, plant visits chairman.

Paul V. D. Manning, International Mineral & Chemical Corp., member of the general committee, photographed talking to Louis Ware, president, International Mineral & Chemical.

Seated in the usual order are: Mrs. A. E. Marshall, C. M. A. Stine of the du Pont Company, who is the newly elected vice-president of A. I. Ch. E., and Mrs. C. R. Downs.

A. W. Pratt, of Stone & Webster Engineering Corp., and D. M. Considine, of the Brown Instrument Co., are shown here with S. H. McAllister, of the Shell Development Co.

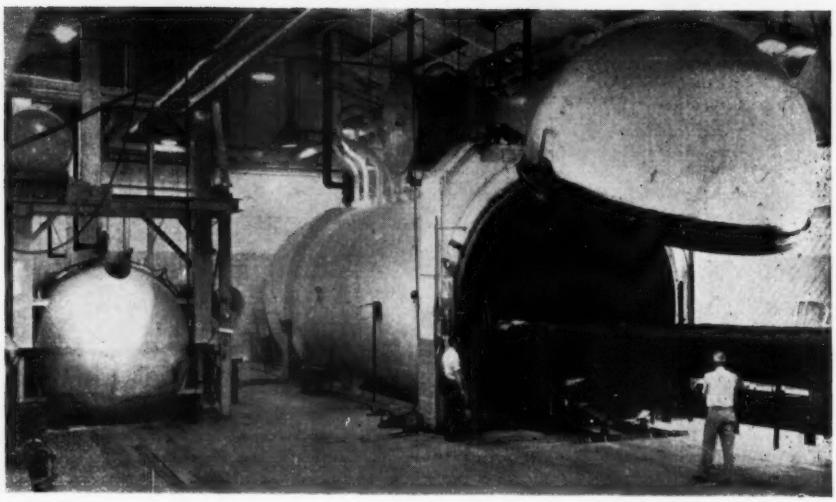
Seated above are J. Ernest Mitchell, Jr., The Dow Chemical Co., who spoke on styrene production, and R. M. Reed, of the Girdler Corporation, Louisville, Ky.

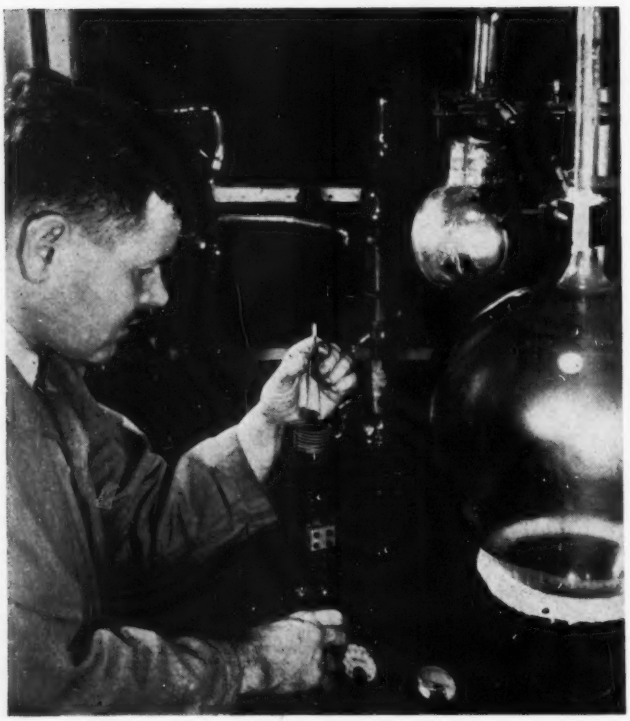
Rockefeller Institute Honored by APMA

The seventh annual scientific award of the American Pharmaceutical Manufacturers' Association was presented to the Rockefeller Institute for Medical Research at the association's midyear meeting, Waldorf-Astoria Hotel, December 10. Presentation was made by Alan Valantine, president of the University of Rochester, who is seen here handing the award to Homer F. Swift, left, acting director of hospitals of the Institute. Dr. Swift acted in behalf of Herbert S. Gasser, director of the Institute, who was unable to attend.

Giant Autoclaves Used for Molding

These autoclaves, or retorts, having a normal steam pressure of 125 lbs. per square inch, are being used in the bag molding process during production of curved sections of plywood for the construction of mammoth H-4 flying boats by the Hughes Aircraft Co. Gross weight of the ships is over 200 tons, or about three times that of any plane previously built. The autoclave at right, which measures 15 feet in diameter by 60 feet long, is being loaded with a section made on a mold over which layers of adhesive-coated veneers are laid cross-grained. The adhesive resin is Amberlite PR-14.





Lamp Research Aids Uranium Program

All the pure uranium that was available to scientists at the outset of the atomic bomb project was made in the laboratory set-up, seen here, at the Westinghouse lamp division in Bloomfield, N. J. W. C. Lilliendahl, research engineer at the division, places a small cube of pressed uranium into a crucible at the bottom of the coil for induction heating in the big bottle at the right. Research, which resulted in the Rentschler-Marden process, was started shortly after World War I, when Dr. Rentschler began to search for a material that was superior to tungsten for lamp filaments. Now director of the lamp research laboratories, he had been producing pure uranium in small lots for many years before atom-splitting became a national program.

Monsanto Phosphorus and Related Products

Phosphorus (Yellow)
Phosphoric Anhydride
Phosphoric Acid-Tetra
Phosphoric Acid—85%
Phosphoric Acid—75%
Monosodium Phosphate
Disodium Phosphate (Anhydrous and Duohydrate)
Trisodium Phosphate
Sodium Acid Pyrophosphate
Tetrasodium Pyrophosphate
Ammonium Phosphates
Calcium Phosphates (Mono-Di-Tri)
Calcium Pyrophosphate
Potassium Phosphates
Magnesium Phosphates
Sodium Iron Pyrophosphate
Iron Orthophosphate
Ferro Phosphorus
Alkyl Phosphoric Acid
Alkyl Phosphates
Special Phosphates for special applications

better than 99.9% pure PHOSPHORUS

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Monsanto phosphoric acid and phosphates are produced against a background of purity — originating from Monsanto's elemental phosphorus, which is better than 99.9% pure.

As the world's largest producer of elemental phosphorus, Monsanto has acquired a vast experience with phosphorus and its derivatives. The benefits of this experience are available to users of phosphorus, phosphoric acid and kindred products. Contact the nearest Monsanto office, or write to: MONSANTO CHEMICAL COMPANY, Phosphate Division, 1700 So. Second Street, St. Louis 4, Missouri.

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BETWEEN THE LINES

German Chlorine Cells Studied

It has been found that the Germans had gone much further than anyone else in the use and development of mercury cells for chlorine production. Groups have been formed in this country to get further data on the German installations and to evaluate them from the standpoint of possible adoption here.

CHEMICAL Warfare Service of the Army, in cooperation with the American chemical industry has launched a joint program for exploitation of the German mercury chlorine cell, details of which were uncovered by a staff of industrial experts, sponsored by CWS, which surveyed German chemical processes in Germany and German-occupied countries immediately after V-E Day.

Plans call for representative industrial technicians to visit Germany in January to secure further engineering data. Meanwhile, another group will select the site and determine the scope of tests for two types of the cell which will be brought to this country by CWS. Preliminaries were arranged at a meeting in December between an advisory group of domestic chlorine producers and CWS representatives at Washington. Arrangements were also made for disseminating information about the German chlorine cell to industry.

The German cell, it was found, had been developed much further than anything in the United States. Several factors contributed to this result: The German caustic and chlorine industry was expanded to meet war needs, and mercury was cheap for German industry through understandings with Spain.

The mercury cell eliminated expensive evaporation equipment. At the close of hostilities it was found that the Germans had under construction cells of 28,000 amperes, largest of their kind known. In the final days of Nazi plant expansion, a new, vertical, rotating mercury cell was used which requires much less floor space than the conventional horizontal cells.

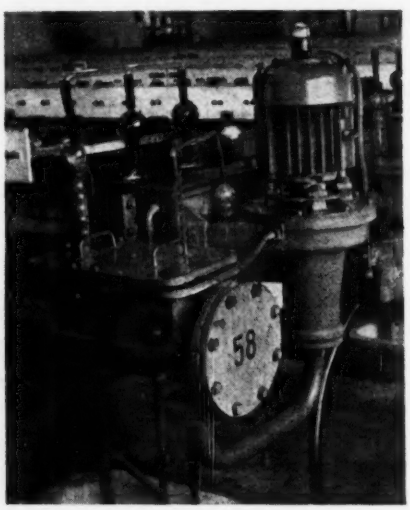
It was also found that the Germans were developing liquefaction of chlorine by means of higher compression followed by water cooling without artificial refrigeration. A new type of rectifier, said to operate at higher efficiency in the lower voltage range, was reported found in at least two of the newer installations.

Heading the industrial group to visit Germany this month is W. G. Gardiner, Mathieson Alkali Works, Inc. Other members of his group include Morton S. Kircher, Hooker Electrochemical Co.; H. E. Houser, Dow Chemical Co.; C. E. Lyon, Diamond Alkali Co.; and a representative of Wyandotte Chemicals Corp.; with the following as alternates: J. G. Armistead, E. I. du Pont de Nemours & Co., Inc.; Earl Karr, Pennsylvania Salt Mfg. Co.; Ray Horst, Solvay Process Co., and representatives of the Monsanto Chemical Co. and Westvaco Chlorine Products Corp.

I. G. mercury cell at Gendorf showing alternate steel cathode circles in bottom.

Advising on domestic installations is a group headed by R. Lindley Murray, vice-president and director of research of the Hooker Electrochemical Co., and including R. M. Hunter, Dow Chemical Co.; Joseph Neubauer, Columbia Chemical Div., Pittsburgh Plate Glass Co.; G. P. Vincent, Mathieson Alkali Works, Inc.; and Russell E. Cushing, Pennsylvania Salt Mfg. Co.

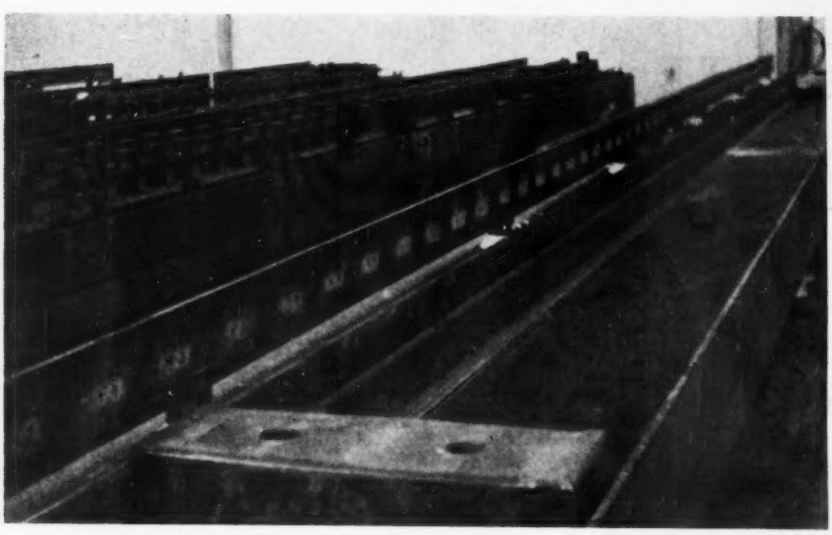
Mr. Gardiner and his group will gather the details still needed, and the Murray committee will recommend test steps.



Mercury pump on Wacker mercury cell.

Operating features of the German cell will be studied for possible utilization, not only in the Army's war gas plants, but also in the entire chlorine industry. It has been suggested that the imported equipment be tried out preferably at a CWS arsenal; but if adequate power is not available at one of these, some other Federal facility may be utilized.

(*Turn to page 80*)



An open Wacker mercury cell showing rubber lining and bare cathode.

Chlorine requirements in the United States during the war led to the Government's entry into chlorine production on a large scale. Eight Federally-financed electrolytic plants were put up. Two of these were built as adjuncts to magnesium plants, although capable of independent operation. It is recalled that some magnesium plants contain specially designed facilities for recovery of chlorine in connection with their magnesium operations. Four of the Government facilities were in CWS arsenals, one was part of a synthetic phenol plant, and one was located adjacent to a CWS plant.

It is interesting to note that the recent recommendations of the Surplus Property Administration to Congress as to disposal of chemical plants surplus from the war suggested that, despite the scrambled nature of the installations which might involve their sale or lease with the parent plant, efforts be made to keep the chlorine facilities in operating condition through negotiated short-term leases.

Private producers also expanded their production capacity—adding at least 11 new units which raised their capacity from 800,000 tons to an annual approximate 1,300,000 tons. From 40 private chlorine plants in 1939, there was an increase to 51 in 1943. Of these, about two-thirds were commercial chlorine and caustic soda producers, about one-fourth were paper companies producing mainly for their own needs, and the others were so-called captive plants, producing chlorine for use in connection with other industrial processes.

The following figures, from the report of the Surplus Property Administrator, shows chlorine consumption in 1940:

Paper and pulp, 34 percent; water treatment and sewage disposal, 10 percent; textiles, 5 percent; chemical manufacture, 48 percent; miscellaneous, 3 percent.

Surplus Magnesium Plants

Carrying forward the report on the surplus magnesium plants in these pages, the Surplus Property Administration has recommended to Congress the retention of sufficient Government capacity, which, with private production, will insure a safe margin of output for a future emergency. .

Meanwhile, it was the finding of the SPA that "private plants are capable of meeting practically all immediate needs, and that there is little likelihood of a peacetime market for the bulk of the capacity of such Government plants as should be kept available for magnesium production in the interests of national security."

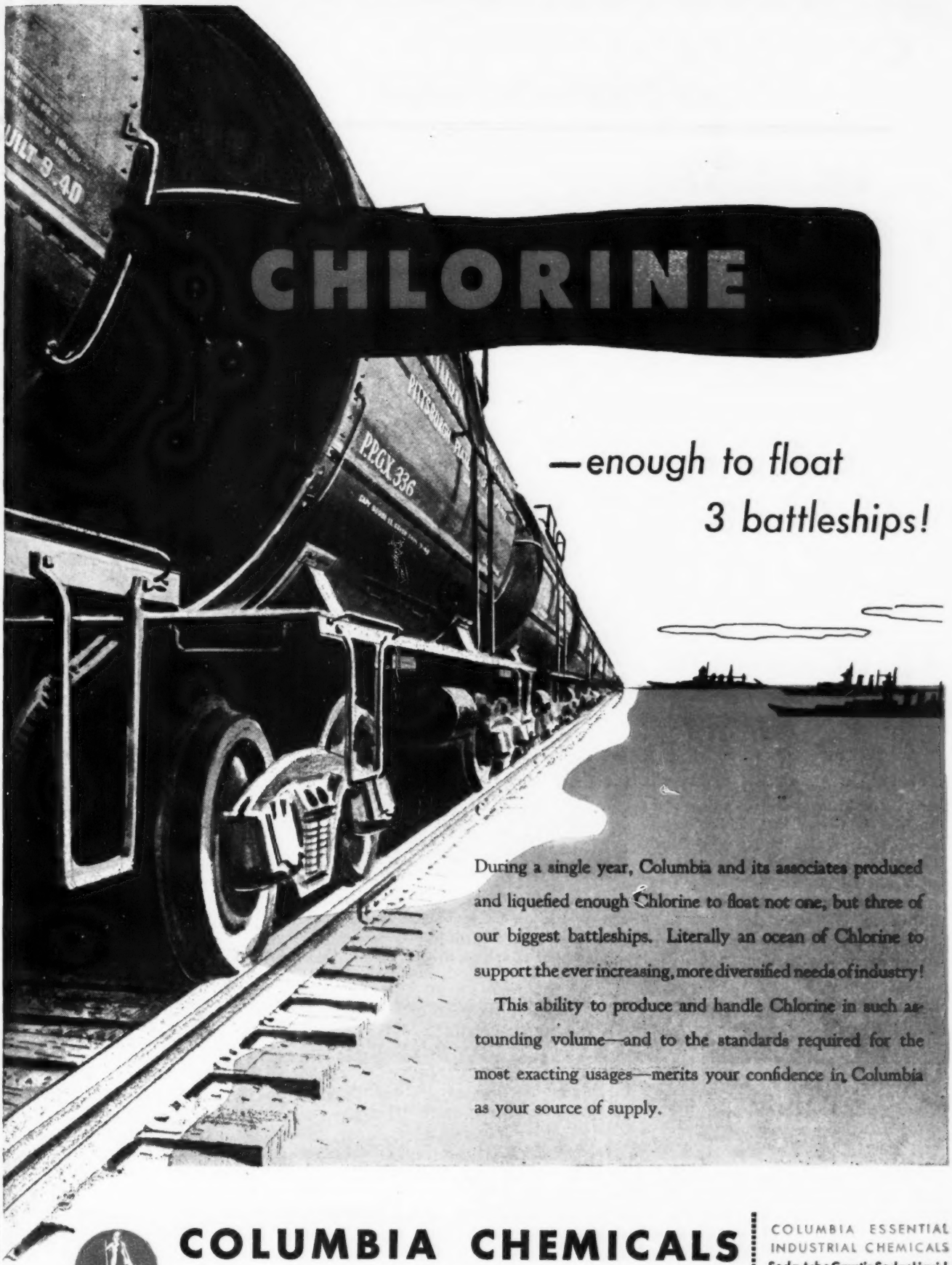
The agency recommended that the following Government-owned plants be retained for magnesium production for this purpose: Freeport and Velasco, Tex.; Spokane, Wash.; Canaan, Conn.; Painesville and Luckey, Ohio. With the estimated private capacity of around 30,000 tons, this is considered adequate to insure a minimum of 127,000 tons annually for an emergency.

The SPA pointed out that its best information indicated a market during the next 5 years of between 25,000 and 33,000 tons. Even this, the agency stressed, is dependent upon active research and market development. The recommendations conceded that the most desirable result would be an expansion of the market sufficient to encourage private operators to take over Government plants, rather than the necessity of maintaining selected plants in stand-by condition.

The agency was frank to point out that opportunities for the smaller operators in this field were better in the fabrication of magnesium, and its use for consumer goods, than in the producing end.

It also found that magnesium and aluminum were competitive in use, although magnesium metal is not competitive in price nor is it as familiar to the general run of manufacturers as aluminum. The report was not encouraging as to the immediate outlook for a new "light metals" era.

There is a speculative possibility that, if steel is again made a scarce commodity by strikes, some manufacturers may seek to use a light metal, where practicable. Other such unforeseeable developments are also not to be discounted.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3 battleships!
During a single year, Columbia and its associates produced and liquefied enough Chlorine to float not one, but three of our biggest battleships. Literally an ocean of Chlorine to support the ever increasing, more diversified needs of industry!
This ability to produce and handle Chlorine in such astounding volume—and to the standards required for the most exacting usages—merits your confidence in Columbia as your source of supply.
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NEW PRODUCTS & PROCESSES

90% Hydrogen Peroxide NP 228

THE Buffalo Electro-Chemical Company, Inc., announces commercial production of hydrogen peroxide, 90 per cent or over by weight.

Previously a laboratory curiosity, hydrogen peroxide of high concentration has always been considered too hazardous for practical use. Intensive research has shown that concentrated hydrogen peroxide of really high purity is a stable material that may be handled without hazard.

Heretofore, the only disclosure of concentrated hydrogen peroxide production has been in connection with the importance of this material to the German military machine. Data published by the Industrial Intelligence Staff of our Chemical Warfare Service shows that the Germans had achieved large scale production of hydrogen peroxide, 80-85 per cent by weight, after several years of intensive development.

Without knowledge of the German development, Buffalo Electro-Chemical Company, Inc., produced, in late 1944, a highly concentrated hydrogen peroxide. Application of modern chemical engineering principles and manufacturing skill has led to the economical production of a product with the requisite degree of purity. With disclosure recently of the details of the German material and manufacturing procedures, it has been found that Buffalo Electro-Chemical Company's product is far superior with respect to concentration, purity, stability and safety in handling.

Hydrogen peroxide has always been considered an ideal oxidant, mainly because it leaves no residue. Accordingly, 90 per cent or over hydrogen peroxide promises to be of great utility in fundamental chemical reactions. Not only is the concentrated material applicable to many new reactions because of the comparative freedom from water, but many known oxidation reactions take place faster and more completely with this product.

Corrosion-Resistant Coating NP 229

The extremely severe corrosion which exists in most plating rooms and on plating room equipment is well known by the industry. The fumes from pickling baths and chrome tanks, together with the drip and spillage from sodium cyanide, chromic and sulfuric acids, copper sulfate, sodium hydroxide, and other plating chemicals, create a very complex corrosion problem, and one which requires a versatile material if it is to stand up under the many and varied corrosive plating solutions.

A large number of different surface treatments have been tested at the Amertorp Corporation, the best of which deteriorated after 30 to 90 days' use. However, during this testing period a coating was found which appeared to have all of the required properties. It is easily applied by plant employees and apparatus; and it is of relatively low cost, as evidenced by the fact that when applied in 5 coats, it has a total labor, material and sandblasting cost of only 16c per square foot. It is tough, abrasion-resistant, and has excellent adhesion over steel, concrete or wood surfaces. Its heat resistance is adequate, even for the exterior of tin plating tanks at 160° F. In areas where it is exposed to continuous damp and humid conditions, it stands up well, having a moisture absorption so extremely low as to be negligible. Its acid resistance is good, including acids such as hydrochloric, sulfuric, phosphoric and chromic; and it has excellent caustic resistance, being unaffected even by continuous exposure to caustic solutions. Around equipment where exposed to oils and greases, it shows no deterioration by these petroleum products; and it is available in pleasing light colors which do much to improve the appearance of a plating room.

The coating is Amercoat #33 Plastic Coating, manufactured by the Amercoat Division of the American Pipe & Construction Co. This coating is a combination of the most resistant vinyl resins, pigments, and plasticizers and combines into the coating many of the properties and the resistance of molded plastic products from the same materials. It is applied cold, and requires no force drying or baking. As the solvents evaporate, the inert plastic film is formed, which provides the excellent chemical resistance of this coating.

Soapless Detergent NP 230

An all-purpose soapless cleaner that suds instantly in hard, soft or sea water is now marketed under the registered trade name of "K. P." The new soapless cleaner is manufactured by the K. P. Chemical Company with sales offices at 16 West 46th Street, New York, and will be distributed through jobbers, supply houses and sales representatives.

Prepared in powdered form and packed in 50-lb. cartons and 350-lb. drums, this cleaner contains no abrasive and is entirely soluble. Every ingredient is an active useful detergent.

Pour Point Depressant NP 231

A new pour point depressant for wax-base lubricating oils has been developed by the Rohm and Haas Company. Known as Acryloid 150, the new material not only lowers the pour point of many oils

AMINE PRODUCTION WITH POROCEL

THE reaction of an alcohol with ammonia in the presence of Porocel to produce primary, secondary and tertiary amines is only one of the many dehydration reactions to which this activated bauxite catalyst may be successfully applied. This reaction gives respectable yields of mixed amines in which the secondary predominates.

Porocel has also been applied with good results to acetal formation, alkyl aniline production, conversion of acetone to mesitylene and other dehydration reactions. Catalytic dehydration with Porocel lends itself to many continuous operations.

Porocel granules do not deteriorate under severe conditions of temperature, flow and regeneration. These properties, combined with low initial cost, lead to marked savings.

Laboratory studies show that Porocel has wide application in the field of catalytic dehydration. Refiners and chemists looking for ways to improve their dehydration reactions or reduce costs may find Porocel the catalyst they need. Our research staff and engineers are always glad to discuss any reaction in which you are interested. There's no obligation. Just write

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effectively, but it retains the reduced pour point under cyclic temperature changes. Paraffin-base motor oils in the SAE-10 and SAE-20 range, which show a pronounced tendency to revert to their original pour points with some additives, are effectively stabilized with Acryloid 150. Stable pour points as much as 40° or 50° F. below the original pour point are readily obtained.

In addition to its unique characteristics as a pour point depressant, Acryloid 150 also exhibits marked effectiveness as a viscosity index improver. Thus it is possible to raise the viscosity index appreciably and at the same time effectively lower the pour points with the addition of this one material. The refiner may, therefore, cross-band his oils, producing an oil which will meet both SAE-10-W and SAE-20 specifications.

Used in quantities of about 1%, Acryloid 150 is economical as well as effective. It is readily blended with mineral oils by any of the commonly used methods. Since the material is supplied as a fairly viscous product it is desirable either to heat the Acryloid to about 150° F. before adding, or to heat the entire blend after the addition of the depressant. Mixing is readily accomplished by circulating pumps or paddle stirrers.

Plastic Coating NP 232

Corrosite, a new air-drying film, completely resistant to most acids, all alkalies, and many chemicals, has recently been developed by Baker Synthetics, Inc. The new coating is expected to prove of great value in chemical and metallurgical plants wherever acid or alkali spillages occur, or where acid fumes or alkali dusts may be present.

Additional advantages of Corrosite are that it will bond to practically any clean surface, including old paint, it offers greater abrasion resistance than can be achieved with any other material without the use of heat, and it is electrolytically impervious.

Corrosite will not crack, chip or lift, and will withstand temperatures up to 250° F. Currently available in black, clear, aluminum and gray, it is shipped in five-gallon cans and fifty-five-gallon drums.

Descaling Evaporators NP 233

A highly effective new agent for loosening and dislodging scale from evaporator tubes and coils is announced by TruTest Laboratories. TruTest Scale-Off is a penetrating agent, specifically designed to speed up the removal of the stubborn type of scale deposited in the evaporators of high pressure marine steam systems, but is equally applicable to evaporators in stationary service.

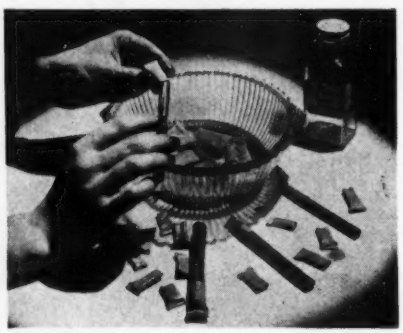
Scale-Off reduces the time required for scale removal because of its unique penetrating action, which insures rapid loosening of scale because the Scale-Off solution gets between the metal and the deposit. Used in connection with cold-shocks to speed up cracking and dislodgement of deposits, it can bring an evaporator back to full rated capacity in a total period of treatment of 12 hours from start to finish.

Scale-Off is neutral and does not break down into harmful by-products when heated. It is completely harmless to all boiler metals, materials of construction and humans. It is sold in concentrated solution, ready for use, without dissolving or dilution.

Sealing Plastic NP 234

A new type of plastic compound with many possible uses, particularly in making seals that are air tight and water tight, has been developed by the Plastics Divisions of the General Electric Company in Pittsfield, Mass.

This new material was developed to seal the ends of metal tubing to keep the



interior free of dust and moisture while being shipped, stored or handled. New uses are being discovered daily, the most recent ones being lead markers on wires and cables. These caps and sleeves are available in red, blue, green, orange, yellow, white, and transparent and their good electrical properties make them useful also as insulation covering for bus bars, selsyn motors, and wire cleats. Completely water resistant, they are being used with success on air conditioning and refrigeration equipment. They can be produced to specified diameters and thickness and shipped dry.

Previous to use these caps and sleeves must be soaked in G-E Dilater solution. They can thus be expanded as much as 50 per cent of their normal size. They are placed in position while dilated and allowed to dry. When thoroughly dry, they shrink to smaller than their normal size to form a tight fit.

Resin Coating NP 235

Corrosion from acids and alkalis can be prevented by the Wilbur & Williams Company plasticized resin protective coating, Acid-Causticbond. It protects floors and equipment from fumes and spillage. This material is now available is several colors, including very light gray and ivory tan. It is brush applied for air drying; specially formulated also for tank interiors and other submerged surfaces.

Vinyl Film for Specialties NP 236

Glam, an entirely new vinyl film with attractive high luster finish, has just been developed for the pocketbook industry by The Pantasote Leather Co., of Passaic, New Jersey, according to Thomas J. Kerr, director of research.

Extremely resistant to most chemicals, alcohol and almost impervious to cigarette burn, Glam is said to retain its original luster if cleansed by simply washing with mild soap and water. Abrasion and wear resistance tests prove Glam to have high durability. Because of its softness and pliability, Glam is easily fabricated into pocketbooks, purses and hand bags.

Glam will be produced in a wide variety of colors and grains and will be available in dull finish if desired. Full scale production is scheduled for December. Samples are available upon request.

Plasticizing Resins NP 237

Two new plasticizing resins for use in metal, wood, fabric, and paper coatings and with plastics and wax compositions, have just been announced by The Dow Chemical Company.

To be known as 276-V2 and 276-V9, they are the first of a new series of styrene resins to come from Dow laboratories.

The company, describing them as water-white, non-yellowing viscous liquids which are chemically inert, said that they possess an attractive combination of properties, are soluble in all common organic solvents except the lower alcohols and compatible with a wide variety of film-formers and plasticizers. The workability of these new resins with waxes, and their resistance to alkali were particularly pointed out as greatly expanding their use. The company stated further that the 276-V's are compatible with most ester and oil type plasticizers including phthalate esters, tricresyl phosphate and castor oil.

As to 276-V9 the company reports it to be compatible with the following waxes at ratios of 3:1, 1:1, and 1:3 parts of resins to wax: Chinese insect wax, Japan wax, Montan wax, spermaceti, paraffin wax, Opal wax, Carbowax 4000, Carbowax 6000 and Acrawax. The mixtures form clear transparent single phase melts when hot and set to smooth, homogeneous pastes upon cooling.

Good electrical properties, ready solubility, alcohol and chemical resistance, lack of acidity and stability on aging make these new plasticizing resins useful in plastic and calendering compositions, bronzing lacquers, paper lacquers, textile

coatings, pressure sensitive adhesives, emulsions, and rubber compounds as well as conventional lacquers, the company said.

The 276-V resins are immediately available and are packaged in 5, 10 and 55 gallon drums—40, 80 and 450 pounds net, respectively.

Ceramic Material NP 238

A thermal expansion coefficient in the same range as that of Invar, and high resistance to extreme thermal shock are among the properties of a ceramic material recently developed in the research laboratories of General Ceramics and Steatite Corporation.

Known as Material M-244, the new ceramic has been heated to a temperature of 1400° F, and then immediately plunged into an ice water bath. M-244 survived the ordeal without cracking, and retained its original dimensions at both temperature extremes within the same limits characteristic of the nickel-steel alloy long employed in the manufacture of precision instruments and standard measures.

Henry H. Hausner, chief research engineer of General Ceramics and Steatite Corporation, advances as potential uses for the new ceramic such applications as in high-temperature furnaces, insulation for high precision instruments in which dimensional changes must be absolutely minimized, and for many electrical and electronic purposes demanding a low thermal expansion coefficient in high quality ceramic parts.

The company plans to supply Material M-244 in any shapes that can be formed by pressing, extruding, or casting.

Some of the technical data compiled on M-244 follows:

Coefficient of thermal expansion.	
Up to 600 deg. F.,	1.6 x 10-6
Up to 1000 deg. F.,	1.9 x 10-6
Modulus of Rupture: 5" span	9.200
2" span	11.500
Dielectric Constant (1000 Kc):	5.30
Power Factor:	.540%
Dielectric Strength:	90v/Nil

The material withstands a temperature of 2500 deg. F.

New Vinyl White Has High Solids NP 239

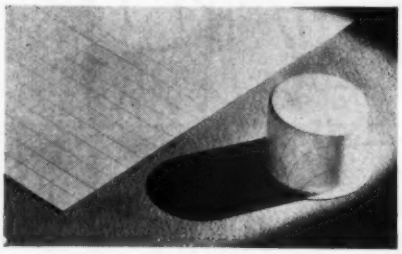
Increased production and better decorating results are in the making for the metal package industry with the introduction this week of Rolox Vinyl White Coating Enamel.

Designed to fill the need for a one-coat material with top resistance to food acids and fats and provide stability under high and repeated baking temperatures, Rolox Vinyl White has been introduced by Roxalin Flexible Finishes, Inc. for sanitary lining coatings for use on foodstuff containers requiring pasteurization, sterilization and processing.

Although Vinyl coatings have been used extensively for several years, they have been low in solids with poor hiding, resulting in costly two-coat applications.

An outstanding characteristic of Rolox Vinyl White is its extremely high solids: 52%, or as much as twice that of conventional types. To this fact alone can be attributed many of the superior properties of this new flexible coating.

Rolox Vinyl White is stabilized in the process of manufacture and will not disintegrate in contact with metals at elevated temperatures. Excellent adhesion is obtained even when the material is applied directly to unsized black plate, electrolytic or hot dip tin. It has excellent



original color and color retention and it will not discolor even under repeated bakings.

Black Dye For Plastics NP 240

Krieger Color & Chemical Company, manufacturers of "Kriegr-O-Dip" plastic dyes, states that its research laboratories have perfected a successful black plastic dye that can be applied in 15 minutes, producing a permanent ebony shade. This new product is now available in all four major types of plastic dye this firm produces.

Uranium Detection NP 241

Uranium can be detected readily in low-grade complex uranium-vanadium ores by a relatively simple and speedy qualitative test developed and used successfully for more than two years by the Bureau of Mines.

Based on the known fact that certain uranium salts fluoresce under ultraviolet light and certain solutions of uranium salts also fluoresce under proper conditions, the Bureau process utilizing short-wave ultraviolet light has furnished a rapid, positive method for uranium determinations and has saved countless laboratory hours in uranium-vanadium ore analyses.

In making the test, the ore is dissolved in a chemical solution in a beaker which is then set on a flat, non-reflecting surface in a dark room. The ultraviolet light is placed on the open top of the beaker. If the ore contains uranium, a bright greenish-yellow light is seen when viewed from a certain angle.

The simplicity and speed of application of the fluorescence method make it ideal for testing ore samples prior to quantitative analyses and the process wastes none of the sample, permits prompt rejection of samples proved to contain no uranium, and provides a corroborating test to be applied to establish definitely the presence or absence of uranium.

The corroborative test is suggested because certain substances dissolved by acids used in preparing hexavalent uranium salts desensitize and inhibit the fluorescence of uranium solutions. In experimenting both with short-wave and long-wave ultraviolet light, it was found that more satisfactory results were obtained with short-wave ultraviolet light.

A copy of the publication, Report of Investigations 7337, "Fluorescence Test for Uranium," by Claude W. Sill and H. E. Peterson, may be obtained by writing the Bureau of Mines, Department of the Interior, Washington 25, D. C.

DDT Formulation in Insecticidal Solvent NP 242

A new DDT preparation manufactured by the U. S. Rubber Company contains DDT dissolved in a synthetic organic oil which is itself an aphicide and arachnicide and has the power to kill pests which can not be destroyed by DDT alone.

In this form the usefulness of DDT is accordingly extended and it is further claimed that when used in combination with the oil a given amount of DDT will cover approximately four times as great an area as in the normal powder form.

The new preparation is recommended for potatoes to control the potato aphid, potato flea beetle, Colorado potato beetle and potato leaf hopper, and for apples to control the codling moth.

In connection with apples, leading growers report that the new insecticide gives an excellent appearance to the fruit, the company scientists claimed.

The formulation is called Deetone.

Phenolic Resin NP 243

Durez 220V, a new modified phenolic oil soluble resin, has recently been announced by Durez Plastics & Chemicals, Inc., North Tonawanda, New York. Durez 220V Resin was formulated to make possible a higher viscosity varnish while still retaining the exceptionally fast drying time and other desirable properties ordinarily associated with similar resins.

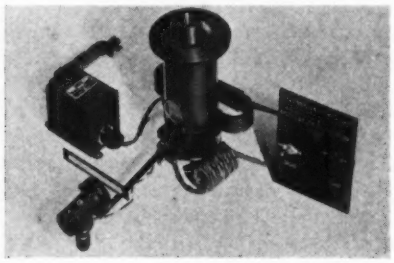
The high solubility in drying oils of the average modified phenolic resin necessitates a longer cooking period to produce a higher viscosity varnish than is necessary with certain other resins. It is stated that not only will Durez 220V Resin produce a higher viscosity varnish in a shorter cooking period but that it also has an extremely fast dry. It will cook to a brilliant, very pale, clear varnish or may be used entirely as a "chill back." Even in short cooks there will be no cloud from fast addition of thinner.

NEW EQUIPMENT

Vacuum Gage QC 696

The new and improved Knudsen gage which for the first time offers continuous reading of low pressures, has been announced by Distillation Products Inc. An arrangement of damping magnets eliminates the necessity for a rigid support without altering sensitivity, permitting the use of the Knudsen gage principle in high vacuum installations.

This new Knudsen gage is similar to



former models whose use was generally restricted to laboratory conditions. The gage consists of an aluminum vane suspended from a fine tungsten wire within a metal casing attached to the vane is a small mirror which reflects light from an external source entering the gage through a lens inserted in the casing. The light is reflected by the mirror onto a scale which indicates the rotation of the vane. The accuracy of the gage stems from the fact that two spiral heating coils are located parallel with the aluminum vane in such a position that gas molecules striking the heating coils are accelerated by their temperature and bounce off to hit the vane, causing it to move counterclockwise. The deflection of the vane is proportional to the number of gas molecules present, and thus the scale reading is an absolute measurement of the pressure.

Temperature of the heating coils in the Knudsen gage is maintained at less than 50° C so that there is no secondary breakdown of the gases, or gas emission from the heaters or other parts of the gage. This eliminates out-gassing problems normally encountered in ionization and similar types of gages.

A feature of the Knudsen gage which is important in normal operation is that the heaters can be turned on and left in operation continuously without any damage to the gage. Zero adjustments can be made by means of an external thumbscrew when the heaters are cold. Normally heaters should be checked every three months.

In the new Knudsen gage the vane may be clamped in place in order to release the suspension during transportation. This may be done at any time by means of an external lever. Easy replacement of the supension is also possible by releasing two set-screws and replacing the tungsten wire. The new Knudsen gage operates within the range of 1×10^{-3} and 5×10^{-5} microns.

X-Ray Source QC 697

The availability of a new high-intensity source of x-rays (in excess of 2,000,000 roentgens per minute) is provided by a new x-ray tube developed by Machlett Laboratories, Inc. The usable intensity is several hundred times that obtainable from previously available sources of such radiation, expanding the possible scope of investigations into the field of x-ray photochemistry.

This increase in x-ray output in accomplished by an analysis of all factors which could contribute to maximum output and incorporating the most important into the design of the tube. The major factors are high anode current, low absorption of x-ray energy in the x-ray window, and close proximity of the point of utilization to the point of generation of the rays. The first of these is made possible by a specially-designed water-cooled anode, the second by the use of thin sheet-beryllium for the x-ray window, and the third by locating the focal spot of the tube very close to the window. The success of this design is due primarily to the ability to produce the thin sheet beryllium in vacuum-tight form and utilize it as a window in the tube wall.

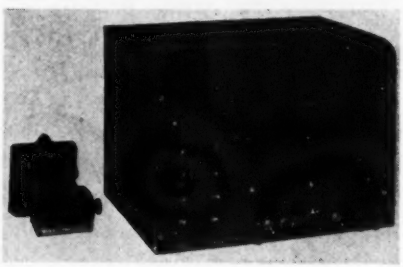
The Machlett tube provides a cone of diation including a 40° solid angle.

Electronic Counter QC 698

An improved two-decade Electronic High-Speed Counter, designed to fill the need in fields unable to employ conventional mechanical counters, has been announced by Potter Instrument Co.

This counter unit is particularly applicable for counts exceeding 10 cycles per second, a rate which is too fast for conventional counters, and in installations where mechanical counters would wear out prematurely because of the high-speed continuous operation.

Used alone as a two-decade instrument, the maximum count capacity of the electronic counter is 100. A tube-operated relay is provided for counts exceeding 100. The relay has a single-pole, double-throw contact which is brought out to



terminals on the front panel of the unit, and operates once for each 100 counts.

An electro-mechanical counter may be connected in series with these terminals and an appropriate external power source, such as the A.C. line. Each 100 counts of the electronic counter will then cause one operation of the electro-mechanical counter.

When operation of the relay and an external mechanical counter are not involved in the application of the two-decade electronic counter, it may be used alone, at counting rates up to 20,000 per second.

The instrument comprises an input section, suitable for any of the four enumerated types of input circuits: contact closure, pulse signals, sine-wave signals, or square-wave signals. It further consists of two standard counter-decades,

POWELL VALVES for Steam, Oil Water, Gas and Process Lines

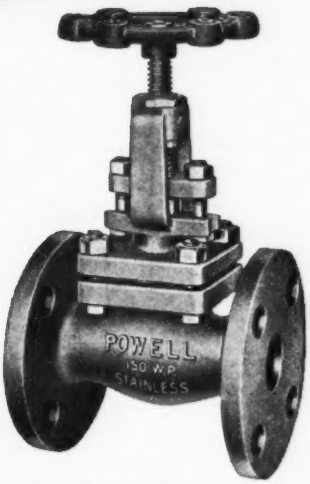
The superiority of Powell Valves is not due to specializing on valves of any particular type or material, but rather it is the result of 100 years of concentrating on making the right valves to satisfy all new requirements for flow control equipment as they have arisen.

That is why today the Complete Powell Line includes valves of *every* type—Globes, Angles, Checks, Gates, Ys, Reliefs, Non-returns, etc.—in Bronze, Iron and Steel (catalogs on request). And for handling practically all known corrosive media, Powell offers a complete line, including Flush Bottom Tank Valves, in a wide variety of Pure Metals and Special Alloys. Write for our booklet "Powell Valves for Corrosion Resistance."

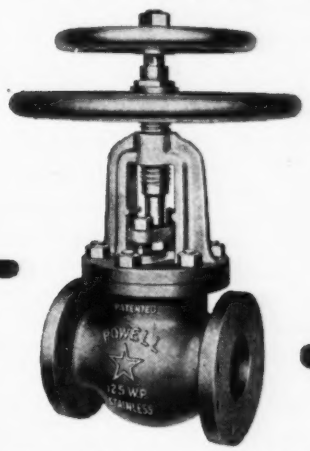
The Wm. Powell Co., Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

125-pound Iron Body Bronze Mounted O. S. & Y. Gate Valve. Also available in all Iron.

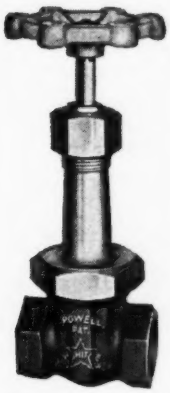


150-pound Stainless Steel O. S. & Y. Globe Valve. Available in many other metals and alloys for corrosion resistance.

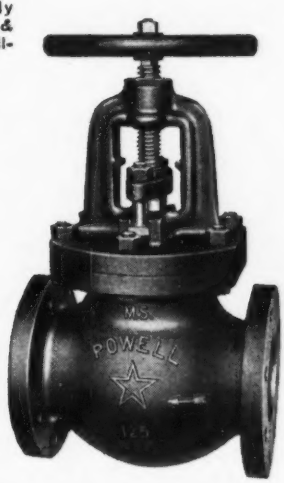


125-pound Stainless Steel O. S. & Y. Globe Valve with Powell Patented Seat Wiping device for keeping seat and disc faces clean, insuring a metal to metal contact.

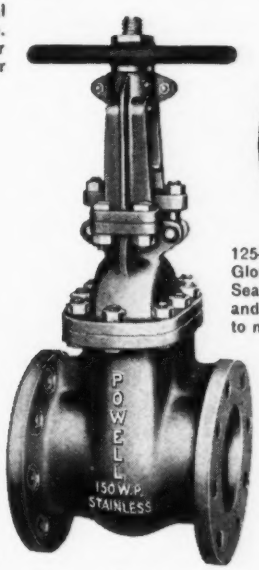
200-pound Bronze Regrinding Swing Check Valve. Regrindable, renewable bronze disc.



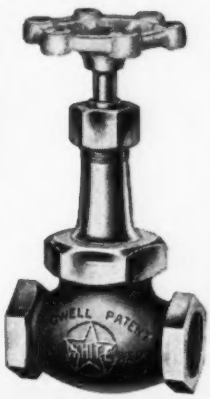
200-pound Bronze Gate Valve with renewable, wear-resisting taper wedge disc.



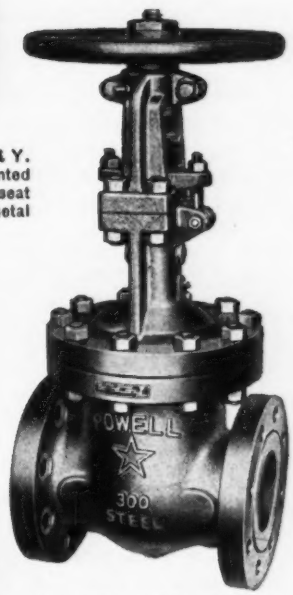
125-pound Iron Body Bronze Mounted O. S. & Y. Globe Valve. Also available in all Iron.



150-pound Stainless Steel O. S. & Y. Gate Valve.



200-pound Bronze Globe Valve with renewable seat and regrindable, renewable wear-resisting semi-cone plug type disc.



Class 300-pound Cast Steel O. S. & Y. Gate Valve.

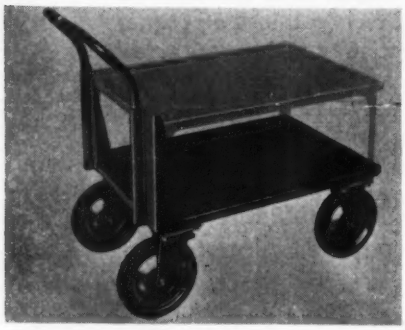
POWELL VALVES

designated respectively as the "units decade" and the "tens decade," an output relay stage, and a power supply.

The two-decade electronic counter is complete with power supply, and is ready for operation from a nominal 115 volts, 60 cycle, A.C. power line. No special types nor special selection of vacuum tubes are required for the counter's 12-tube complement.

Utility Truck QC 699

The new all-purpose utility truck of Drinkwater, Inc., is designed for rapid handling of material in industrial plants. Among the important features are short



wheelbase for maneuverability and all-steel construction.

The steel bed and platform of the Drinkwater Utility Truck are seamless one-piece construction. All corners are rounded, edges reinforced. Substantial corner guards have been provided to give handle maximum rigidity and protect corners of load. A reinforced steel channel runs beneath the bed of the truck giving it a tremendous "falling weight". The manufacturer claims that 100 lb. weights can be dropped on the bed of this truck without impairing its life. The platform is removable and each truck can carry from one to four platforms, accomodating a wide variety of items.

The truck is 23⅛" wide x 33⅜" long x36" high. The four steel disk wheels are ball bearing and can be supplied in either 8" or 10" sizes with rubber tires or 10" with plastic tired wheels, swiveled in the rear.

Stainless Steel Magnetic Separator QC 700

The development of a powerful, non-electric magnetic separator with a working surface made entirely of stainless steel is announced by Eriez Mfg. Co.

The Eriez magnet offers a simple means of removing both large and small pieces of iron and steel trash from ingredients going into the manufacturing processes. Installed at any point where raw materials enter a chute or conveyor, the Eriez Separator will attract and hold magnetic foreign bodies, preventing them from falling into machinery where they will cause damage. An Eriez stainless steel magnet may also be installed in the bottom of a steel trough, pipe line, or liquid feeding equipment where it removes ferrous particles from liquids and slurries, preventing material spoilage.

The stainless steel feature makes this type of separator of interest in many places where corrosion would introduce undesirable contamination.

Screw Pump QC 701

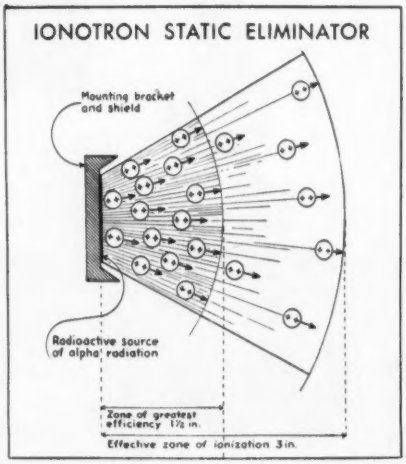
Quimby Pump Co., a division of H. K. Porter Company, Inc., announces new developments in its balanced quadruplicate screw pump.

Improvements are demonstrated by the new external bearing pump designed with bracket type anti-friction thrust and line bearings. Separate pedestals with the three-point alignment problem and spacing washers are eliminated, providing free expansion of shafts for wide changes in temperatures. Precision pre-loaded anti-friction bearings permit close running clearance between the body bores and the screws.

This new construction can be provided on all existing pumps without disturbing present pipe connections or location of the motor.

Static Electricity Eliminator QC 702

Elimination of static electricity from machinery and from moving paper, plastic sheeting, textiles, and other materials is made possible with a new device, the Ionotron static eliminator, developed by



the United States Radium Corp. The device has no moving parts and requires no electrical connections.

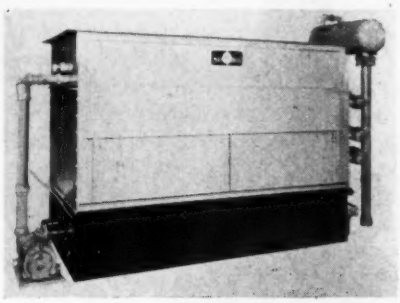
Alpha radiation from a long, narrow radioactive surface, ionizes the surrounding air up to a distance of three inches from the surface. Effectual removal of static electricity within this zone is permanently assured in all applications, because the radioactive strength of the active element decreases only 50% in some 1600 years.

The static-neutralizing element consists of extremely thin metallic foil, incorporating a radioactive substance and welded to a nonradioactive metallic backing. The foil serves as a mechanical bonding medium for the radioactive material and acts as a seal to prevent escape of radon gas. The construction is such that alpha radiation is emitted directionally, creating an ionized zone in the region of the electrostatic charge. The assembly is mounted in a housing designed to provide adequate shielding and can be supplied, within limits, in forms or shapes to meet special requirements.

Its installation is reported to require no redesign of existing equipment but involves engineering problems—such as determination of alpha-radiation strength required and proper positioning in relation to stock and machine parts.

Liquid Cooler QC 703

The new liquid cooler of the Niagara Blower Co. refrigerates cooling water or



any aqueous solution for industrial uses.

In operation the water is sprayed over banks of coils in which the refrigerant is expanded. The cooled water is collected in a tank. The liquid is recirculated independently of the distributing system for closest control over temperatures and heat transfer efficiency. By means of a newly developed coil arrangement and design, capacity increases of 50% to 100% are gained over the company's previous equipment in comparable sizes. It is possible to produce 33°F water constantly without danger of damage from freezing —as the system is open and does not depend for safety on the proper functioning of the back pressure regulating valve.

The range of capacities in different sizes runs from 4.7 to 137 tons refrigeration. The model rated at 137 tons is 105" x88"x60". Water deliveries range from 11 to 220 gallons per minute.

Hand Trucks QC 704

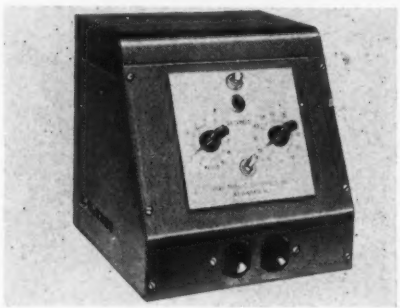
Northrop-Gaines, Inc. has a line of hand trucks in production with a frame cast in one solid piece of aluminum. Smallest of three sizes weighs only 3 pounds, yet has been stress-tested under a 5000-pound load—heavier than any one man could hope to budge.

These hand trucks are of the type used in railroad stations and warehouses for moving heavy loads such as boxes, trunks, barrels or raw stocks. Large-size trucks

have special clips on the side bars which permit the operator to handle a barrel without danger of rolling it off the truck accidentally. The new truck is reported to be five times stronger than the competitive wood-and-steel models now on the market.

Electronic Timer QC 705

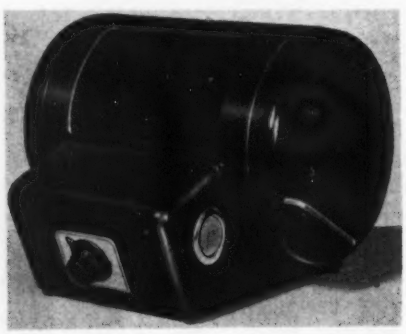
Electronic Controls, Inc. announces a new electronic timer. The time range is from 1 to 120 seconds in increments of one second with accuracy better than 5%. Unit is housed in a slope front steel cabinet and two dials are provided for time selection. One dial is calibrated in



single seconds; the other in ten second steps. Unlike potentiometer control, the snap-positioning step-switches assure precision control, with exact values of resistance inserted in the circuit at each position. A pilot light, toggle on-off switch and a push-switch are included. A double receptacle permits timing two circuits simultaneously.

Desk Viewer QC 706

The new Copeland Super-Viewer of the Barnett Optical Laboratories magnifies with extreme clarity 2x2″ and the larger 3¼x4¼″ photographic transparencies. The images seen with this viewer are completely free from color fringes (chromatic aberration) common to most viewers. The



viewer is supplied with two slide carriers which enter the instrument through side openings: one to hold 2x2″ slides, the other 3¼x4¼″ slides. Transparencies in other sizes can be viewed by masking and mounting between cover glasses of the above sizes. This is the only viewer that will accommodate the large lantern slide, size 3¼x4 inches. A rotating cylinder houses the optical system. This permits adjustment of the viewing angle up or down to suit the observer. A rheostat, conveniently located, permits variable lighting and acts as an "on-off" switch. The lighting system consists of a 25-watt lamp backed by white reflectors.

Continuous Printer QC 707

A new, 42-inch continuous printer for making photocopies by the hundreds is announced by American Photocopy Equipment Co.

The new model, CP-421, makes actual size copies of anything written, printed, drawn, typed or photographed—even if on both sides. No darkroom is required—photocopies may be made in ordinary, subdued lighting.

The machine will handle photocopy paper up to 42 inches in width, of any length.

Operation of the machine is simple, and requires no technical training. The opera-

tor places the original, together with a piece of photocopy paper, on the moving, endless belt, which takes it through the machine, exposes it, and deposits it, ready for processing, on a handy tray at the top of the machine. The belt moves at speeds from 1-20 feet per minute—the desired speed being easily obtained by turning a small knob at the operator's right. Several people can use the machine at the same time, thereby greatly increasing the speed with which photo-exact copies are made.

Proper exposure is provided by varying the speed of the moving belt, and by adjusting the shutter opening. This variable combination gives absolute exposure control for a complete range of papers and types of originals.

Light is obtained from two 40-watt, 48-inch fluorescent lights. One light is amber, for making negatives; the other, white—for making positives. Each light is controlled by its own separate switch.

All controls are at the operator's fingertips, as is the handy, large storage cabinet for holding photocopy supplies.

Grip QC 708

A cam-lever mechanism and chain that grabs up heavily laden steel barrels, steel plate, etc., and holds it in a vise-like grip that grows tighter the heavier the load is announced by the Boyer-Campbell Co. . . .

the device to be known to the trades as "Granny Grip." The standard unit consists of two stamped alloy steel bodies (cam lever mechanism) and Hercalloy chain capable of lifting any load, up to 4 tons, that its ¾″ jaws can be slipped over.

Pipe and Cable Locator QC 709

The combination of factors for the precise location of depth of buried pipe and cable, with the Stewart Cable Tester is an improvement announced by W. C. Dillon & Co. The new product is called the Stewart Cable Tester & Locator combined. In a simple operation it tells just where cable or pipe is buried, and just how deep. It is furnished with detector coil and neutral exploring coil. Built-in level in coil enables operator to maintain absolute accuracy.

Dust Goggle QC 710

A new dust goggle is announced by American Optical Co. The new goggle is equipped with an acetate eyecup that

permits a wider angle of vision and is more comfortable to wear. In addition, a thin wire mesh screen, on the inside of each side shield, gives maximum protection against fine dust particles.

The new eyecups are individually

S-T-R-E-T-C-H-I-N-G A BOXCAR

IN THE EARLY STAGES OF THE WAR, a serious shortage of shipping space threatened supply lines to Europe and the Pacific. Aiding in the urgent search for a solution to the problem, The Cambridge Tile Manufacturing Company, Cincinnati, successfully completed an experiment in compressing three carloads of dried whole egg powder and loading them into a single boxcar.

Presses that had been used to compress clay into Suntile were quickly converted into food compression equipment through the use of new dies designed and built in Cambridge Tile's own shops. Facilities were rapidly expanded to meet the ever increasing demand of the Armed Service Forces for compressed emergency rations. But the conversion created handling problems that throttled production and prevented full utilization of the extra shipping space made available by the new food compression method.

So Towmotor engineers were called in to install a modern materials handling system. 100-pound bags of dried food powders were loaded on pallets in the receiving room and fed to the production line in a continuous, controlled stream. The finished cakes of compressed food were packed into shipping cartons, assembled into large unit loads, and moved directly into the boxcars by one girl and a Towmotor. Work schedules were accurately timed to provide maximum output per man and machine. Closer inventory control eliminated delays and tie-ups. Production speed was increased to machine capacity, freed from the limitations imposed by slow handling methods. Most important, Towmotor made possible immediate and full utilization of every foot of shipping space.

The results achieved at Cambridge Tile are typical of Towmotor installations throughout industry. The know-how and experience that contributed numerous opportunities to increase productive output also enabled Cambridge Tile to effect savings of $1,000 a month in handling costs alone. The Towmotor Materials Handling Analysis Guide, a product of know-how and experience, will greatly simplify your handling problem; send for a copy today. Towmotor Corporation, 1237 East 152nd Street, Cleveland 10, Ohio.

TAKE IT UP WITH

TOWMOTOR

THE ONE-MAN-GANG

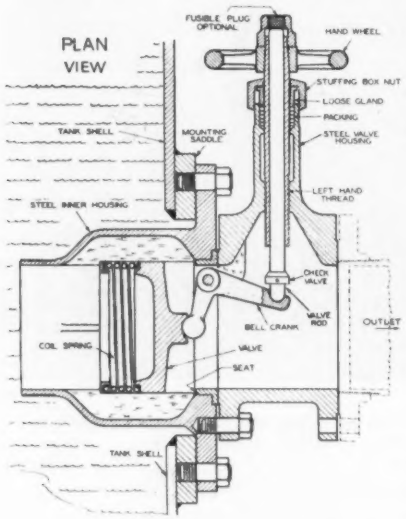
shaped to conform to the contour of the right and left eye. They fit snugly against the face to keep out dust and powder. The ventilating system extends over a larger area to reduce the possibility of fogging. The fine wire mesh screens prevent dust from reaching the eye. They are easily cleaned by a blast from an air hose or a thorough washing.

Equipped with clear AO Super Armorplate lenses, the goggle's retaining rings are of solid fibre. The goggle is also available with rubber cushion, on request.

Internal Tank Valve QC 711

Oceco V-104 internal tank valves safeguard the contents of liquid storage tanks against "run-off" in event of line breakage and permit the flow to be shut off to make repairs in the line. They can be closed either manually—or automatically through the melting of the fusible plug—to prevent the tank contents from feeding a fire.

As illustrated in the diagram, the valve is mounted on a saddle, which is welded to the tank shell. Turning the hand wheel to the left forces the valve rod downward. This actuates the bell crank, pushing the valve inward, putting the spring under compression—and permitting the fluid to pass outward. Reversing the hand wheel releases pressure on the spring, which reseats the valve, stopping the flow. The fusible plug melts at a critical temperature,



releasing the valve rod and cutting off the flow automatically in case of fire.

The valves have steel bodies, valve rods and bell cranks. Furnished with bronze or stainless steel trim, with or without the fusible plug. 4″, 6″, 8″ and 10″ sizes are standard. Others on special order.

Flexible Tubing QC 712

A new type of flexible tubing, noncollapsible under plus or minus pressures and retractable to about one-eighth its extended length, is announced by The Warner Brothers Company, Spiratube Division, for portable or semi-permanent ventilation or any handling of air, gases or light solids. Its spring steel helix core causes it to spring out to its full length, and it will stay in this position on pressure or suction.

A feature of the Spiratube construction is the method of spiral-stitching the spring core within the fabric. The inside surface is free of wire ridges, providing far less resistance to air flow and no obstruction to the passage of solids. Sharp bends can be made with only slight reduction of air flow and without the use of elbows or special fittings.

Spiratube is lighter than metal duct or molded tubing, and takes up less space

when retracted. The standard Spiratube is made of long-fibre duck, having a bursting strength of 170 psi; the fabric is processed fire-resistant and covered with a thermoplastic material. It can also be made to specification in a variety of other fabrics for special applications. Spiral-stitching is done with a double seam of rot-proofed thread. There is no exposed metal inside or out, (even the couplings are covered), eliminating the possibility of sparking where explosive or inflammable materials are present.

Spiratube is furnished in standard diameters from 3 inches to 16 inches, and in lengths of 10, 15 and 25 feet. Built-in couplings permit quick joining or disconnecting.

Slide Rule QC 713

The new Deci. Point slide rule is reported to be the first to place the decimal point.

Use of Dowmetal in its construction permits the use of self-centering "optical groove"—a type of tongue and groove construction favored in optical instruments because it prevents side play and binding. The Dowmetal core is surfaced with a flat white plastic.

Electric Immersion Heater QC 714

A new Cromalox electric immersion heater of Edwin L. Wiegand Co. has been designed for heating greases, solid oil and other compounds supplied in 55 gallon drums or similar containers.

Uniform heating of material is secured by placing the heater in the drum and allowing it to melt its way to the bottom. An adjustable thermostat limits the operating temperatures if the heater is allowed to operate unattended.

The heater uses a large circular heating element. Steel risers allow all electrical connections to terminate in a standard conduit box for convenience of wiring. An eyebolt at the top of the assembly permits easy handling.

Known as Type DH, this new Chromalox electric immersion heater is available for 115 or 230 volt, single phase current in ratings up to 5000 watts.

Environment Proof Switches QC 715

Two methods of making switches environment proof have been worked out by Robert Hetherington & Son, Inc. One utilizes a bellows on the plunger end of the switch and the other places a rubber boot over the plunger.

The rubber boot has been satisfactory, but where hydraulic fluids and gasoline or other solvents are present, or where the switch will meet extremes of heat and cold, the metal bellows is recommended.

Wheels QC 716

Northrop Gaines, Inc. has announced the availability of industrial wheels, cast solidly of aluminum and with hard rub-

ber tires molded firmly on the wheels. These wheels, now being built in six-, eight-, ten- and twelve-inch diameters, are designed for use on hand trucks, dollies and all rollable industrial equipment.

Although they weigh as little as three pounds, the Northrop Gaines wheels are built to carry 40 percent more weight than any wheel of equivalent size, and are equipped with Timken tapered bearings, which require no lubrication during the life of the wheel.

Remote Valve Control QC 717

A remote valve control assembly has been developed by J. A. Zurn Manufacturing Co. to facilitate control of valves in hard-to-get-at places. Valves can be opened and closed from one control board.

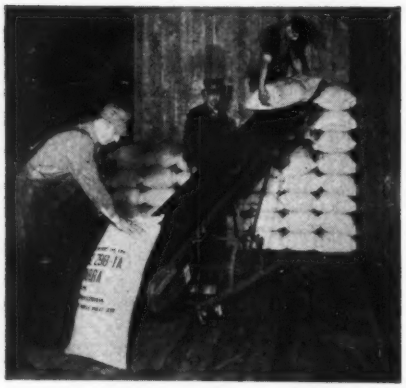
The assembly consists of a flexible cable, for transmitting torque to the handle of the valve to be operated, or a rod or pipe connected by universal joints; a remote valve control box, the cover of which can be engraved to identify the type

of valve it operates; sleeve bushings, terminal brackets, cable clips and a rod coupling for the valve wheel.

The valve control boxes are made in cast bronze, steel, semi-steel or iron of various dimensions, and can be attached to masonry construction, metal or wood partitions.

Belt Conveyor QC 718

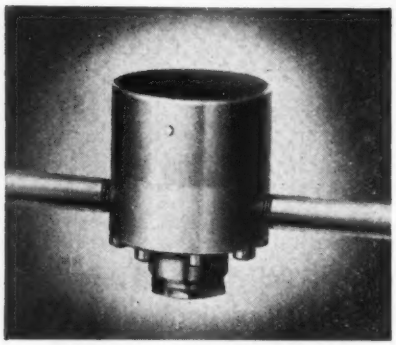
The new Handibelt of the Standard Conveyor Co. is an all-purpose inclined, declined, or horizontal portable belt conveyor. It is adjustable to various elevations and angles. The Handibelt will carry commodities wider than the belt. It has ample capacity for 110 lb. bags or boxes or a continuous load of 20 lb. per foot.



Because of its flexibility in adjustment the Handibelt may be applied to a wide variety of uses. As a horizontal conveyor it can be used as an individual unit to reach from one fixed position to another, as a connecting link between other conveyors, or as a feeder conveyor.

Pressure Reducing Regulator QC 719

The new Grove Mity-Mite regulator weighing less than 2 pounds is suitable for handling initial pressures up to 3,500 lbs. with adjustable control range from 5-1,500 lbs. Special models can be supplied for pressures ranging up to 5,000 lbs.



Although primarily designed for air and gases, this small unit can also be furnished for liquid service. A unique valve and seat construction was especially engineered for positive dead-end shut-off. It is instantaneous in its operation. Available for ⅛" and ¼" pipe size this tiny unit was originally employed in controlling the actuating medium on rockets and pack type flame throwers.

Electric Motor QC 720

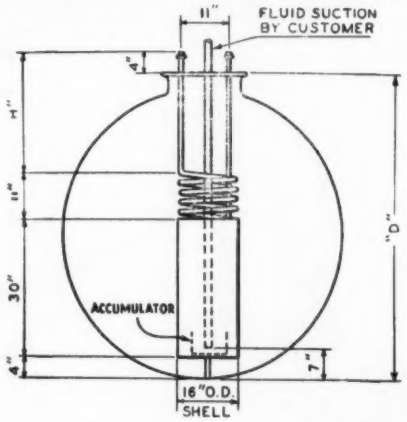
Three new frame sizes have been added, designated as B58-A, B and C, by the Crocker-Wheeler Division of Joshua Hendy Iron Works.

NEMA standardized frames 326 to 505 as well as the three, newly added, larger sizes are basically the same in construction with the addition of two shielded, air exhaust openings in the upper half of the frame. The design of these openings precludes any possibility of falling liquids, etc., entering the motor.

Bulk Tank Preheater QC 721

A new bulk tank preheater has been developed by Rempe Co. for preheating heavy liquids in bulk storage.

This preheater can be made to fit any size tank having a manhole 16½" or larger. It is installed by cutting or drilling holes for pipes in manhole of the tank. It has 38 square feet of direct radiation surface, plus 10 square feet of secondary shell heating surface.



It is provided with a flow accumulator which makes it necessary for liquids to flow over the coils before entering the suction line, assuring preheating.

Either steam or hot water can be used by providing proper size inlet and outlet pipes at time of fabrication.

The coil is 1½" standard steel pipe. The shell is 12 gauge sheet steel—16" O. D. The accumulator is steel construction bolted in place and the complete unit tested with 400 lbs. air pressure under water after fabrication.

Current Input Controller QC 722

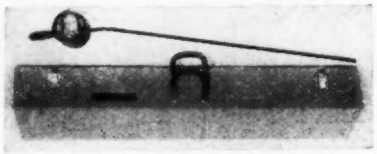
The Bristol Co. has recently developed a new electric type controller which combines a proportional current input controller and a recorder in one case. Designed to provide extremely accurate control of electrically heated furnaces and ovens, this new instrument provides on-and-off type control with the advantages of proportioning control.

A rotating cam interrupts the flow of current to the heating coil or coils the duration of which is determined by the departure of the controlled temperature from the control point.

Portable Pyrometer QC 723

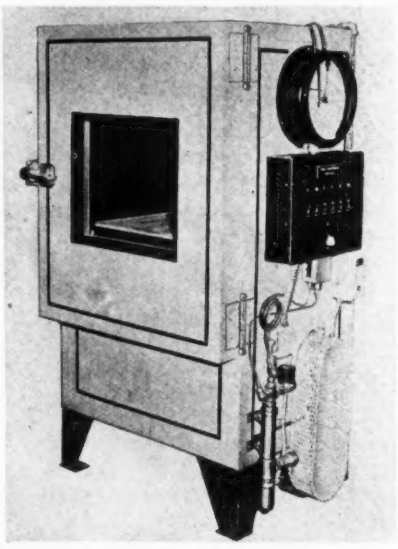
Quick, accurate, and direct measurement of the temperature of solutions heated to the range of 1200° F. is now possible with a new, portable hand pyrometer, manufactured by Roller-Smith Co.

Made of durable materials the pyrometer may be inserted into any heated chemical or food solution or may be used to measure the temperature of ovens or atmospheres. Since the operator reads the temperature directly from the scale, subjective judgment often involved in color comparisons or other indirect means of measurement is eliminated.



Humidity Chamber QC 724

A new insulated variable temperature and humidity chamber for the simulation and control of atmospheric conditions has been announced by Tenney Engineering, Inc. The cabinets are scientifically designed to provide accurate simulation and control of any desired temperature, humidity and air circulation condition in laboratory or production testing opera-



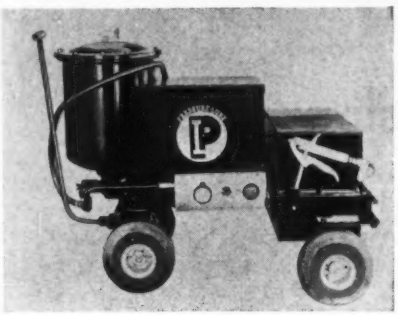
tions. Conditioned air is kept in continuous forced circulation without undesirable draft and uniform wet and dry bulb temperatures throughout the cabinet are thus provided.

When operating, the temperature does not vary in any part of cabinet by over ±1°C. Relative humidity can be controlled up to 90 per cent and the atmosphere will not vary over ±½°C. from the wet bulb of the humidity required.

Glass doors permit inspection of contents without exposure of same to outside air. Under any set conditions, temperature and humidity will remain constant during operation. A simple resetting of controls brings cabinet to a new equilibrium within ten to fifteen minutes.

Portable Greasing Unit QC 725

A new portable greasing unit supplied with a grease gun, has been an-

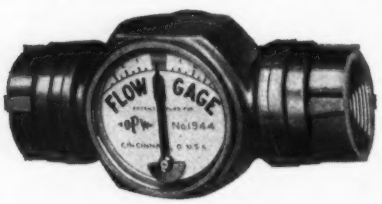


nounced by Pressurelube, Inc. It is available either with battery powered or gasoline driven motor. No electrical cord or air hose is required. The unit delivers up to 12,000 lbs. steady pressure to effect complete lubrication of parts.

Complete portability provides "on the spot" lubrication for equipment of all types. A further advantage is the ability to easily reach difficult spots that might otherwise be overlooked or neglected.

Flow Gage QC 726

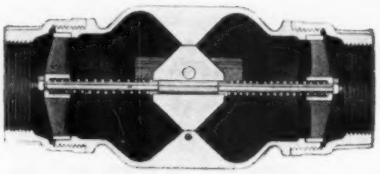
The new magnetic flow gage of the Ohio Pattern Works and Foundry Co.



consists of flow actuated aluminum plunger which is bored lengthwise to fit over a shouldered bronze shaft, which is retained by a bronze spider at each end of the body. The springs of either end of the plunger are to assist the plunger to return to the neutral (no-flow) position.

The plunger is also cross-bored to receive the magnetic cylinder which protrudes to rest on grooved longitudinal slots in the sides of the body.

When liquid flows in either direction, the plunger slides on the bronze sleeve,



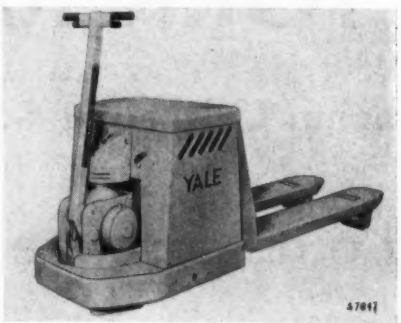
the magnetic cylinder causing the indicator hands to move, the extent of the movement being dependent on the rate of the flow.

Electric Lift Truck QC 727

The new Worksaver Electric Truck of the Yale and Towne Manufacturing Company with power for lifting and power for travel relieves its operator of all physical strain. A man or woman operator can handle loads up to 3 tons by finger-tip pressure on dual cam controls located immediately beneath the hand bar-grip. Two forward and two reverse speeds are provided.

A hydraulic unit powers the elevator, lifting and lowering is controlled by a switch placed on the front of the battery compartment.

The drive motor, located at the base of the steering handle, is a high-torque, ball bearing type. A drive pinion, mounted on its armature shaft, operates through a double-reduction spur-geared unit, running in lubricant, to drive a 10" diameter, rubber-tired front wheel. The drive unit is mounted on a 16" diameter ball bearing turntable, immediately above the front wheel. Steering is accomplished by



turning the turntable with the steering handle. The truck can be turned in its own length.

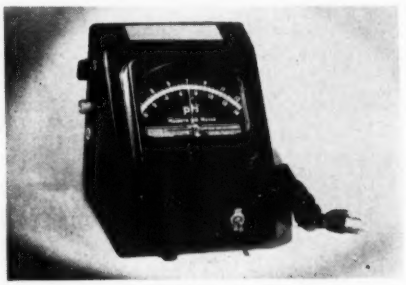
Power for both the elevating and drive motors is obtained from a lead or alkaline battery housed in a compartment which is an integral part of the truck chassis. This compartment has a hinged cover and removable sides for convenient charging and change of batteries.

The Worksaver is available in two types: platform and pallet, which is pictured. The former is designed to handle single unit loads, consisting of a crate, bale, etc., or multi-unit loads on skids or in skid bins up to 6,000 lbs; the latter to handle single or multi-unit loads which are "palletized", up to 4,000 lbs.

The platform is of heavy formed steel plate, with apron on sides and at front end to give added strength and protection. Platforms are available in seven different lengths, ranging from 36" to 72", in 6" steps. Maximum overall length of this truck thus varies from 70¼" to 106¼". Overall width is 31", and overall height (at the battery compartment) is 27¾". Rear wheels come in 6", 7", and 10" diameters.

pH Meter QC 728

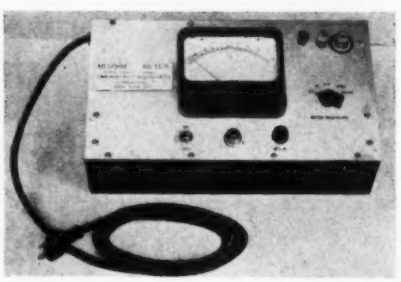
A newcomer in the pH Meter field is announced by the Macbeth Corp. with the introduction of the new Macbeth Line-operated pH Meter. Extreme simplicity



of operation is reported. Only one control in addition to the electrode switch is used, greatly increasing the number of workers who can easily operate the pH Meter. pH values are read directly on the scale in .1 units over the full range of 0-14 pH. Since no batteries whatsoever are used, the Macbeth-Line-operated pH Meter can be left on continuously.

Megohm Meter QC 729

A range from 400,000 ohms to 100,000 megohms in five ranges on single scare four inch meter is claimed for the new model 1500 Megohm Meter, developed by



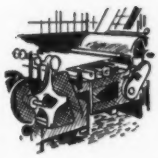
Communication Measurements Laboratory. Accuracy is within 5% at any position on all ranges.

CML's 1500, weighing only eight pounds, is now being used in a wide range of applications: Measuring of leakage resistance of insulation materials, condensers, coaxial cables, wiring harness, motor and transformer windings. On production checking of resistors the range may be extended below 400K by the in-

Diethylene glycol

GIVES BETTER RESULTS

textile softener



Diethylene Glycol increases the flexibility and stretch of cotton, rayon, wool, and mohair. Its coupling action in mineral oil soap systems is widely utilized in the "soluble oil" type of textile lubricants.

dyeing and printing assistant

Because of its excellent solvent power, Diethylene Glycol is an important assistant in the pasting of dyes. The resulting pastes retain non-drying properties upon storage.

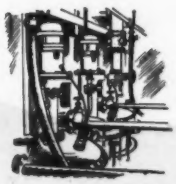
moistening and flexibilizing agent

Because of its marked hygroscopicity, Diethylene Glycol is effective as a humectant for tobacco and as a softener or plasticizer for cellophane, paper, composition cork, phenolic resin binders, glues, gelatin, and casein.

gas reaction inhibitor

When Diethylene Glycol is used in sand molds for casting magnesium alloy parts, it prevents the molten casting from reacting with either the steam generated by moisture in the sand, or with the sand itself.

chemical intermediate



Diethylene Glycol is used in the manufacture of rosin esters and allyl and maleic alkyd type resins. With the higher fatty acids, it forms esters which are good emulsifiers and plasticizers for synthetic resins.

dehydrating agent

By removing moisture from natural gas, Diethylene Glycol prevents high-pressure transmission lines from becoming clogged due to the formation of natural gas hydrates.

Diethylene Glycol is supplied in drums or tank cars. Write for further information on the uses of this versatile chemical.

CARBIDE AND CARBON CHEMICALS CORPORATION

Unit of Union Carbide and Carbon Corporation

UCC

30 East 42nd Street, New York 17, N. Y.

SYNTHETIC ORGANIC CHEMICALS

crement method. Model 1500 is also recommended for determination of moisture content of wood, paper board, plastics, textiles, and other materials in which electrical resistance is a function of moisture content.

Model 1500 is extremely stable despite line voltage fluctuations. A change in line voltage from 90 to 130 volts produces a change of less than 3% in meter reading at mid-scale. Single zero reset adjustment is provided for all ranges and drift after initial warm-up period is substantially zero. Accuracy is guaranteed better than 5% on all ranges at all points on scale.

Direct Current Motors. QC 730

The Kato Engineering Co. has added several sizes of direct current motors to their line of electrical products. Illustrated is the Model ½ DVO7 which is

rated at ½ H. P. and has an 18 ampere input. This model is approximately 10-15/16" long by 7-3/32" high by 7" and weighs approximately 45 lbs. This particular design is available in sizes 1/3 and ¼ H. P. Other sizes are available upon specification.

The motor has ball bearings with grease seals. The manufacturer guarantees these bearings to be sufficiently lubricated for life; however, lubrication can be replenished by removing metal discs which are held on to both ends of motor with three small machine screws. Both the louvered cover and commutator end cover can be rotated so as to permit mounting motor in any horizontal position and the motor is drip proof when horizontally mounted.

The brush holders are of stamped brass with adjustable tension arms. Commutator endbell cover is easily removable to permit inspection and adjustment of brushes and brush holders. Brush holders are mounted on Bakelite insulating rings. These motors are available for 110 and 220-volts D. C.

Conductivity Cells QC 731

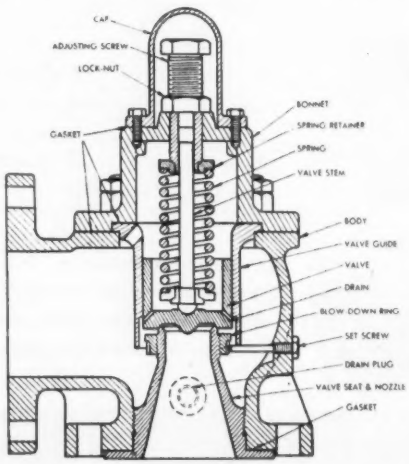
A new positive-flow type cell has been developed by Industrial Instruments, Inc. for use with their electrolytic conductivity controllers and recorders. Compact, and enclosed in a hinged steel case, the unit consists basically of a tubular glass conductivity cell with concentric cylindrical platinum electrodes, and a continuous duty stainless steel centrifugal pump. The unit is adapted for mounting either on

the outside wall of a tank, or on an instrument panel at a distance from the tank. Connection to the liquid under test is made with ⅜" O. D. Saran or metal tubing.

With this type of conductivity cell, accurate measurements can be made even with rapidly changing concentrations since the forced circulation reduces the time lag to a small value. This design also permits the use of a cell of high cell constant where the liquid is a good conductor. This is necessary in making accurate measurements in highly conductive solutions

Pressure Relief Valve QC 732

The Oceco V-105 pressure relief valve operates as a safety valve for vapors and



gases, and as a relief valve for liquids.

The beveled seating surface assures positive, consistently tight seating of the valve. The loose threads on the nozzle, and the ample reinforcement on the lower neck minimize distortion.

The nozzle is extra long thus bringing the valve seat well above the lower part of the discharge area. Consequently friction losses are extremely low when discharging vapors,—and—being of top guided construction, the valve does not experience the coking and sticking encountered when valves are guided from below.

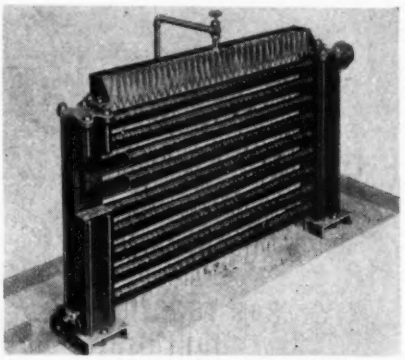
Laboratory and field tests have proven that these valves have minimum blow-down. After the blow-down ring has been set in the desired adjustment, it is locked securely in place with a set screw. No change in the capacity of the valve, or the size of the secondary orifice is possible, until the screw is retracted, and the blow-down ring readjusted.

Furnished with iron or steel bodies, with either bronze or stainless steel trim. 2" x 3", 3" x 4", 4" x 6" and 6" by 8" sizes are standard. Other sizes on special order.

Cascade Cooler QC 733

"Karbate" sectional cascade coolers are now available from National Carbon Co. A complete cooler assembly is quickly and easily erected from four standard items in five pipe sizes and is adaptable to a wide range or process requirements. Construction is such that additional units, or sections, may be added.

"Karbate" sectional cascade coolers are



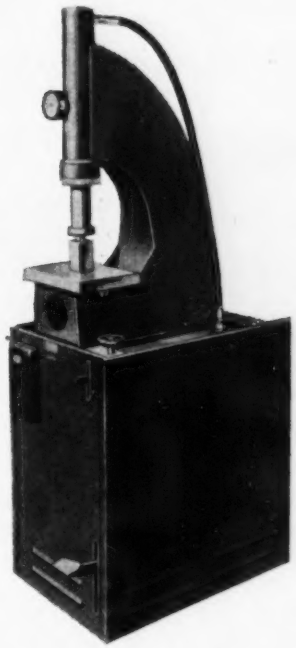
recommended for service in practically all acids, caustics and organic solvents at pressures up to 75 lbs. per square inch and temperatures up to 338°F. (170°C). Minor changes in the method of applying the cooling water permits the handling of gases well in excess of this temperature.

9′ long, single pipe, "Karbate" cooler sections are stacked to form a series flow vertical bank and are held in place by steel tie rod assemblies which form a rigid supporting structure. Gaskets are furnished in either synthetic rubber or asbestos composition. A standard steel water distributor is mounted on the tie rod assemblies and can be adjusted to assure uniform cooling water distribution over the pipe. The compact construction offers close pipe spacing and eliminates the necessity of redistribution baffles. Maximum effective external surface areas of approximately 120 square feet are available in all of the five sizes in the maximum recommended cooler height of

six feet. The complete cooler assembly is easily dismantled for the addition or replacement of interchangeable sections.

Hydraulic Press QC 734

A line of positive self-contained hydraulic presses adaptable to all sizes and



types of shops has recently been announced by the Munton Manufacturing Co.

They are available with self-contained motor drive, foot operated, either mounted with bottom of press open or flush as illustrated.

They are available in capacities of 4½, 7, 10, 15, 20 and 25 tons, with means to limit pressures. Pressure gages help determine pressures being applied. A holding valve may be ordered as an extra, enabling the ram to be held under pressure until a lever is tripped.

The rams are interchangeable on the various presses, permitting greater speeds with low pressure rams or higher pressures at low speeds, or vice versa, giving the shop a wide range of production possibilities with the one press.

Fire Extinguisher QC 735

A new carbon dioxide hand fire extinguisher is announced by The B. F. Goodrich Company.

Made to meet the full approval of fire underwriters, the container holds four pounds of carbon dioxide and comes with a carrying handle and control button designed for fast operation. It can be carried in one hand, with the thumb of the carrying hand operating the push button. A horn swivel quickly raises or lowers as needed, remaining in lower position when attached to the wall rack furnished with each extinguisher, together with a quick release chain.

PACKAGING & SHIPPING

by T. PAT CALLAHAN

Packaging of Acids And Corrosive Liquids

T. Pat Callahan

The following article inaugurates a new monthly series wherein the packaging and shipping of various specific types of commonly used chemicals will be discussed. The editor of this column welcomes comments and criticisms.

AMONG the large - tonnage items in the chemical industry are a great number of acids and corrosive liquids which pose special problems in handling. Among the important items are the following:

Sulfuric Acid
Nitric Acid
Hydrochloric Acid
Mixed (Nitrating) Acid
Chlorosulfonic Acid
Hydrofluoric Acid
Phosphoric Acid
Acetic Acid
Hydrofluosilicic Acid
Phosphorus Trichloride
Phosphorus Oxychloride
Perchloric Acid
Fluosulfonic Acid

Practically all of the above materials are shipped in the following containers:

1. 5-Pint Bottles
2. 5-, 6½-, 12- or 13-Gallon Glass Carboys
3. Metal Drums
4. Tank Cars

In this article it is impossible to go into detail as to just which of the above materials can be shipped in the various kinds of packages listed above. For example, sulfuric acid can be packaged in all the containers listed above, but there is a limitation on the strength permitted. In all cases the regulations of the Interstate Commerce Commission must be consulted and complied with. As another example, chlorsulfonic acid can be packaged in 5-pint bottles, steel drums, and tank cars, but cannot be packaged in glass carboys.

Five-Pint Bottles

Five-pint bottles, usually packaged in an outside wooden box containing ten bottles to a unit, are used mostly for the packaging of C. P. or reagent chemicals. They may be used for other grades of acids or corrosive liquids, but again the strength and kind of acid governs the restrictions and limitations. As a further example, nitric acid packed in 5-pint bottles and placed inside an I. C. C. specification wooden box is limited to sp. gr. 1.49 (47.75° Baumé). If it becomes necessary to ship nitric acid above this concentration, the bottles must be further enclosed in individual metal cans before shipment is made. Prior to the advent of plastic screw caps, which are impervious to many acids, 5-pint bottles were usually the ground glass-stoppered type, which were generally sealed by applying plaster of paris to the tops. This always proved very unsatisfactory, as the breaking of the seal usually contaminated the acid. With the development of screw type plastic caps, the application of plaster of paris is no longer necessary and the five-pint bottle, through this improvement, is a much more satisfactory container.

Glass Carboys

Corrosive liquids or acids are somehow identified with glass carboys, since this has seemed to be the container most generally used throughout the years for the shipment of these materials; it will continue to be a very popular method of packaging. There are in use today four sizes of carboys, but, as time goes on, it is expected that the industry will stan-

Thirteen-gallon carboy with top removed showing one type of cushioning which may be applied. This widely used container conforms to Specification ICC 1A.

A Simple Example of Multiwall Bag Economy

If it takes 3 *men*
1 hr. to pack
9,000 lbs.
in heavy barrels or fabric bags

Why only 3 *men*
1 hr. to pack
18,000 lbs.
in Multiwall Paper Bags?

Greater packing speed is only one of the advantages of Multiwall Bags and Bag-filling Equipment.

Multiwall Bags actually improve working conditions. They are tight and siftproof. They are compact and easy to handle.

With Multiwall Paper Valve Bags, your product is accurately preweighed . . . before the bags are closed. And, the bags require no tedious shaking by hand to assure proper settlement.

Multiwalls are closed automatically by the internal pressure of their contents. There is no bother with troublesome lids or hand-sewing. By this method, a single man, operating two filling machines, can keep two other men busy checking and stacking the bags at the rate of 18,000 lbs. per hour.

Space-Saving Advantage

Five hundred empty 100-lb. Multiwall Paper Bags can be stored in approximately the same space as one 200-lb. barrel. Think what this means in saving valuable plant floor space.

In fact, Multiwalls mean economy and improved packaging all along the line. These bags will be specially made to fit your particular requirements. For full information, write your nearest St. Regis office today.

MULTIWALL

MULTIPLY PROTECTION • MULTIPLY SALEABILITY

ST. REGIS PAPER COMPANY

TAGGART CORPORATION

NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.
BALTIMORE 2: 2601 O'Sullivan Bldg. SAN FRANCISCO 4: 1 Montgomery St.

IN CANADA:
St. Regis Paper Co. (Can.) Ltd.
Montreal, Quebec
Vancouver, British Columbia

Birmingham Boston Cleveland Dallas Denver Detroit Franklin, Va.
Los Angeles Nazareth, Pa. New Orleans No. Kansas City, Mo. Seattle Toledo

dardize on two sizes: namely, the 6½-gallon size and the 13-gallon size. The 6½-gallon bottle is the largest bottle which can be manufactured by machine at the present time, and the 13-gallon size is the largest which can be hand blown and used safely.

The carboy most commonly used by the chemical industry is the 13-gallon size, which supplanted the 12-gallon size several years ago. The 5-gallon size, however, is being used; and only recently the industry has adopted a 6½-gallon carboy, the description of which appeared in CHEMICAL INDUSTRIES.

The I. C. C. designates glass carboys under two specifications, ICC 1A and ICC 1D. The ICC 1A carboy is the conventional boxed carboy. In usage, one places the bottle within the box, protecting it with certain cushioning which allows safe transportation of the enclosed bottle. The most common closure for this type of carboy is a porous clay stopper with a gasket, although in some cases cast glass stoppers are used. One of the most important regulations for the shipment of acids and corrosive liquids in this type of carboy provides that venting of the material must take place. There are, however, in addition to the conventional porous clay and cast glass stoppers for carboys which must be vented, ground glass-stoppered bottles, used principally for the shipment of C. P. acids, and these do not require the provision for venting. In making shipment of any acid or corrosive liquid in glass carboys, the I.C.C. regulations must be consulted; not all can be shipped in glass carboys.

The 6½-gallon carboy recently approved by the Interstate Commerce Commission is a departure from any established method for shipping acids and corrosive liquids. A complete description of this carboy appeared in the October 1945 issue of CHEMICAL INDUSTRIES (page 631). It differs from all carboys previously used in that this bottle is equipped with a closure designed to withstand without venting internal pressure up to 10 pounds per square inch. It must be remembered, however, that this carboy is approved only for nitric, sulfuric, and hydrochloric acids, and in general is being used only for C. P. or reagent grades of acids. Application for use for other regulatory products is now pending, and it is quite certain that further permissions will be granted by the I.C.C.

Metal Drums

Metal drums are used very extensively for the shipment of acids and corrosive liquids. The most universal type drum used for many of these materials is the ICC 5A drum which is constructed of low carbon, open hearth, or electric steel. The 55-gallon size is the most popular, but a great number of 110-gallon drums are in use. Rigid specifications as to construction and closure have made this

"Well, *then, suppose* you *set the price*"

THIS hapless mug dickering for the Brooklyn Bridge, isn't, we'd have you know, a Crown customer. Crown customers are smart. That's why they buy from Crown. They realize that Crown's fair price policy is highly advantageous . . . They know that all comers to Crown are treated alike, and treated right! Copy book stuff? Of course! Crown customers have found it a mighty profitable angle. We have and so will you.

CROWN

FINE METAL CONTAINERS

CROWN CAN COMPANY • PHILADELPHIA • Division Crown Cork & Seal Company, Inc. • Baltimore, Maryland

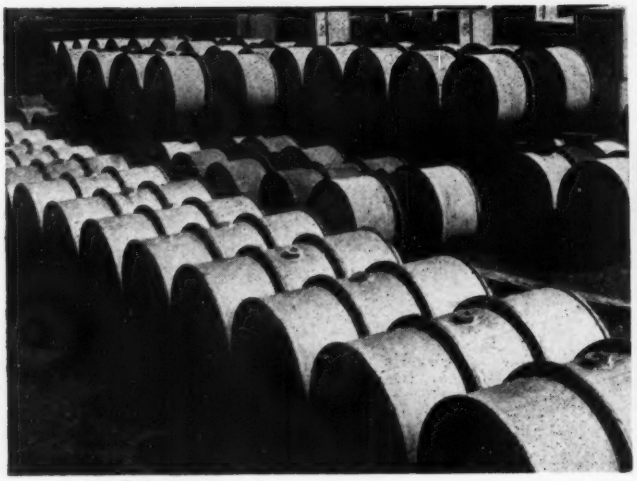
a very safe container in which to ship a great number of acids and corrosive liquids, chiefly sulfuric, oleum, chlorsulfonic, and mixed (nitrating) acids. Extreme care must be exercised at all times to keep the openings in these drums closed, for the ingress of moisture increases the rate of corrosion perceptibly, weakening the drum. Other types of metal drums used for some acids and corrosive liquids are the ICC 5C stainless steel drum; the ICC 5K nickel drum the ICC 5D rubber-lined drum; the ICC 5H lead lined steel drum; the ICC 5X aluminum-lined drum; and the ICC 42B, 42C, and 42D all-aluminum drums.

All these specification containers are permissible for use for specific acids and corrosive liquids. For example the ICC 5K nickel drum is permissible for use in shipment of phosphorous trichloride and phosphorus oxychloride. It cannot, however, be used for the shipment of sulfuric acid. The I.C.C. regulations must be consulted in order to determine which type can be used for various acids.

Tank Cars

Tank cars are used to transport large quantities of acids and corrosive liquids. Again, the most commonly used tank car is the plain steel tank car, I.C.C. Specification 103A. Up to a few years ago, the only type of construction permitted for tank cars of ICC 103A specification was the riveted type, but now tanks of all-welded construction are permissible. No bottom unloading is permitted, although provisions for a washout nozzle is included in the specifications. Tank cars range in size from 4,000 gallons to 10,000 gallons. Just as the ICC 5A drum is the most commonly used drum, so is the ICC 103A the most commonly used tank car; and in general wherever ICC 5A drums are permitted, ICC 103A tank cars are permitted also.

The chemical industry throughout the years has developed other types of specialty tank cars for the shipment of acids and corrosive liquids, each designed to meet the requirements for the specific material to be shipped. These include rubber-lined, for hydrochloric and phosphoric acids; aluminum tanks for the shipment of acetic and nitric acids; stainless steel for nitric acid, and lead-lined tanks for battery acid, phosphorus oxychloride, phosphoric trichloride. Extreme care must be exercised in the handling of tank cars containing acids or corrosive liquids; for unless persons handling them are familiar with the unloading, serious injury may result. In tank cars containing acids, it is very important that, before the releasing of the contents is started, the pressure which may have built up during transportation be released. If through any fault of the shipper the air vent is not properly marked or stenciled to so indicate its position on the dome, nothing should be done until a



ICC 5A Steel Drum (left), 103A Tank Car (right), and 15A Box with 5-pint bottles (below) for acids.

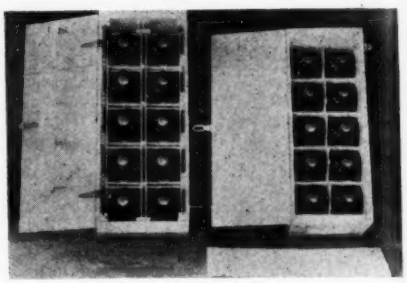
proper authority has made certain as to the correct opening to release the pressure. Many accidents have happened because the acid outlets of tank cars were opened before the pressure had been released through the air vents.

Safety Vent Regulations Amended

An important change in the Interstate Commerce Commission regulations concerning safety vents was approved by the commission in Nov. 1945, and went into effect on the same day.

This amendment to the regulations concerns safety vents for ICC 103 B and ICC 103 BW tank cars. The difference between these tank cars is in the construction of the tank, the former being of riveted construction and the latter being of welded construction. We quote the change as it applies to the construction of both:

"(a) Safety valves prohibited, but a safety vent must be applied. Except for hydrochloric (muriatic) acid of 22° Baume strength, and other fuming acids, safety vent of approved design equipped with frangible discs having ⅛ inch breather hole in the center



thereof, or a safety vent of approved design equipped with carbon discs permitting continuous venting, may be used."

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U.S.I. CHEMICAL NEWS

JANUARY ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1946

New Syntheses Hinge on High Reactivity of Ethyl Chloroformate

Low-Cost Chemical Paves Way to New Products and Processes

Recent investigations have shown that ethyl chloroformate ("ethyl chlorocarbonate") enters into a wide variety of organic reactions that should lead to the rapid and efficient manufacture of many important industrial and medicinal products. This versatility, coupled with the product's low cost and present-day availability, points to its expanded use in various branches of the industry.

In view of the quickening interest in the new uses for ethyl chloroformate, U.S.I. presents here a resume of the reactions which have appeared from time to time in U.S.I. CHEMICAL NEWS.

Reactions

1. Ethyl chloroformate reacts with ammonia, amines, amides, imides, and amino acids to produce such compounds as urethan, ethyl imidodicarboxylate, N-carbethoxy-imidodicarboxylate, ethyl allophanate, cyanuric acid,

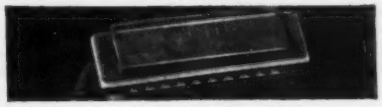
(*Continued on next page*)

Versatile Metal Cleaner

A patent has recently been issued describing a new metal cleaner designed to remove oil, grease, carbon, gums, ethyl gasoline stains, and other contaminants. Particular usefulness is claimed for it on zinc die castings, aluminum castings, and metals which have undergone dichromic and anodic treatments. The cleaner contains: butyl alcohol, ethyl alcohol, rosin, ethylene dichloride, propylene dichloride, vegetable oil soap, and other ingredients.

THE MONTH IN PLASTICS

RECORDINGS — Sales boom in non-shatterable vinyl phonograph records . . . MEDICINE — New water-soluble plastic — polyvinylpyrrolidone — administered as a blood substitute . . . MOLDING MATERIALS — High heat-resistant silicone resins cured by catalysts . . . MUSIC — An all-plastic



harmonica — wartime GI morale-booster — now available to civilians . . . PROTECTIVE COATINGS — A new plastic — polyethylene —now applied in flame-sprayed coatings... DOMESTIC — Plastic bobby pins and clothes pins hit the market . . . PSYCHIATRY — Plastic kits introduced to occupational therapy . . . AERONAUTICS — Pressurized cabins in stratosphere liners made possible by a laminate of polyvinyl butyral resin and methyl methacrylate . . . INDUSTRIAL DESIGN — Modern plastic household appliances now on exhibit in New York.

Ultra High-Speed Bodying Afforded by New Hard Resin

U.S.I. Arochem 333 Is Radically Different Modified Phenolic Ideal for Use with Unbodied Linseed or Dehydrated Castor Oil

The first really significant postwar development in the field of varnish resins is a modified phenolic, Arochem 333, just announced by U.S.I. Chief among the many unusual properties exhibited by this resin is its ability to produce varnishes of normal viscosity without the need for prebodying the slow-polymerizing oils currently used in varnish manufacture. Varnishes made with this resin are obtainable in light colors, show less tendency to yellow, and are faster drying than other modified phenolic varnishes. Arochem 333 is used in many types of printing inks as well as in soft oil varnishes.

Specifications—Arochem 333

Acid Number	35-45
Melting Point (Mercury Method)	165-175°C.
Color (G.H. 1933-50% cut in Toluol)	10-12
Specific Gravity	1.1

Solubility: Completely soluble in coal-tar solvents and medium and low viscosity drying oils; partially soluble in petroleum solvents. Insoluble in ethyl alcohol.

Saves Production Time

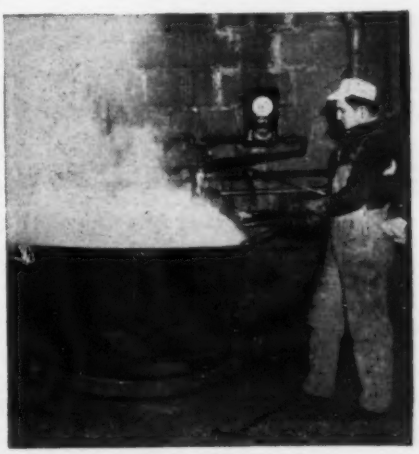
Since Arochem 333 eliminates the need of prebodying the oils, the time and expense involved in this preliminary process is saved. The actual cooking time of the varnish, moreover, is equal to or only slightly greater than the time required to cook conventional modified resins with pre-bodied oils. For example, 20-35 gallon length unbodied linseed Arochem 333 varnishes can be cooked to conventional viscosity with only one hour holding time at top temperature (580° F.), whereas the same holding time is required to achieve equivalent viscosity with typical modified phenolics and "Z" viscosity linseed. Still shorter cooking cycles can be employed with unbodied dehydrated castor oil.

Arochem 333 can be used with all slow-polymerizing oils, but it is not recommended with straight tung or oiticica oils or with kettle bodied oils with viscosities above Q-R (Gardner-Holdt).

Other Unusual Properties

Soft oil varnishes made with Arochem 333 dry faster than comparable varnishes made with a wide variety of modified phenolics now available. Relatively pale colored varnishes which show less tendency to after-yellow are obtainable with this resin. They are equal or

(*Continued on next page*)



VARNISH MAKING—Resins and oils are cooked in large kettles. When Arochem 333 is used, prebodying slow-polymerizing oils is unnecessary.

Superior Safety Glass Results from New Process

A recently granted patent describes a process which may bring about the production of improved safety glass. By means of this process, polyvinyl acetals — a group of plastics used in the formation of safety glass interlayers — are stabilized and their adherence to glass increased.

According to claims made in the patent, this superior interlayer material is made by suspending 100 parts of a polyvinyl acetal, such as polyvinyl butyral, in 1000 parts of a 37 per cent ethyl alcohol-water solution at 45 degrees F. for 5 hours. The reaction is carried on in the presence of sufficient quaternary ammonium hydroxide to render the solution slightly alkaline. Preferred quaternary ammonium compounds are: dimethyldibenzylammonium hydroxide and trimethylbenzylammonium hydroxide.

Vegetable Oil Soap Stock New Phosphatide Source

Substantial quantities of phosphatides can be produced as a by-product in the alkali-refining of vegetable oils, according to the claims made in a recent patent. The phosphatides are recovered by extraction from the vegetable oil soap stock.

Two methods of extraction may be employed. In the first, the soap stock is treated with a soap-solvent, such as acetone, in which the phosphatides are insoluble. The phosphatides are then separated by filtration. In the second, the soap stock is treated with a phosphatide-solvent, such as petroleum ether, in which the soap is insoluble. The phosphatides are then recovered by evaporation. The crude phosphatides recovered by either of these methods are purified by washing with an aqueous solution of an acid or an acid salt to reduce the pH to between 3 and 4.5.

JANUARY ★ **U.S.I. CHEMICAL NEWS** ★ 1946

Ethyl Chloroformate

(*Continued from preceding page*)

ethyl quanidine dicarboxylate, and ethyl cyanamidedicarboxylate.

2. It forms condensation products with ethyl iodide in the presence of metallic sodium to produce ethyl secondary-butyl ketone and other products.

3. It reacts with Grignard reagents to give: ethyl benzoate, triphenyl carbinol, triethyl carbinol, and ethyl alkylcarboxylates.

4. With allyl iodide in the presence of zinc, it gives, among other things, triallylcarbinol.

5. With metal compounds of alkylacetylenes, it gives ethyl alkylacetylene-carboxylates.

6. With alcohol or alcoholates, it produces neutral alkyl carbonates — either mixed ethyl carbonates, or di-substituted alkyl carbonates; with quinine there results quinine ethyl carbonate; with sodium ethylene glycol, it gives diethyl ethylene dicarbonate from which ethylene carbonate can be obtained.

7. With phenol, it gives ethyl phenyl carbonate and ethyl salicylate.

8. With sodium sulphide, there results dicarbethoxysulphide; with sodium ethanethiol, there results ethyl thiolcarbonate.

9. By means of malonic ester, acetoacetic ester, and cyanoacetic ester syntheses, it forms ethyl methanetricarboxylate, ethylmethanetetracarboxylate, ethyl carbethoxyacetoacetate, and ethyl cyanomalonate.

10. It reacts with benzene in the presence of aluminum chloride to give ethylbenzene.

11. With sodium benzoate, it gives ethyl benzoate and benzoic anhydride; ethyl benzoate is also produced by its reaction with bromobenzene and sodium amalgam.

12. With acetone and potassium cyanide, there results O-carbethoxy-alpha-hydroxyisobutyronitrile; with potassium cyanate, there results, carbethoxy isocyanate, and, depending on the conditions, the tricarbethoxy derivative of isocyanuric acid, and also the triethyl, the diethyl carbethoxy, and the ethyl dicarbethoxy derivatives of isocyanuric acid.

13. With phenol carboxylic acids and alkali, it gives carbethoxy derivatives.

→

The copper ore from this mine is concentrated with the aid of flotation agents synthesized by the use of ethyl chloroformate as an intermediate. To date this has been the principal use of this U.S.I. product, but its reactivity points to wide potentialities in chemical manufacture.

New Hard Resin

(*Continued from preceding page*)

superior to any of the other widely used modified phenolics in alkali and water resistance.

The fast bodying properties of this resin make it of extreme value to the gloss ink manufacturer. The fast drying and color retentive qualities add to its usefulness. The exceptionally large polymer size of this resin yields ink vehicles of maximum hold-out.

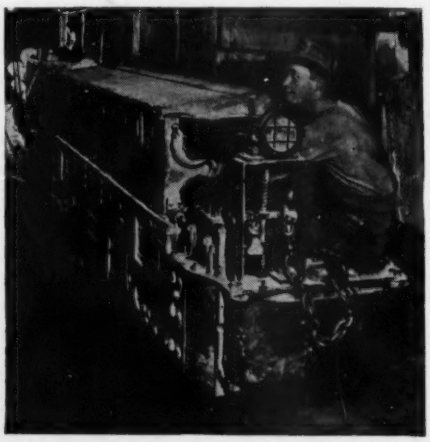
Ether Extraction Yields Hypertension Anti-Pressor

A new therapeutic agent for the treatment of either essential hypertension, or the hypertension of pregnancy complicated by ecclampsia, is described by a New York chemist. This new anti-pressor, for intramuscular injection, is extracted from naturally occuring compositions with butyl and ethyl ethers.

The final product, after recrystallization from hot, distilled water, is a white crystalline material with a melting point of 119° C.

Penicillin Quality Up

Both the quality and potency of penicillin have risen, according to a recent government announcement. Originally, 100 units per milligram was acceptable for clinical use, but the average potency today ranges from 500 to 800 units per milligram.



TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

A rot-proof fabric, made of modified cotton, has been developed by a government bureau. **(No. 018)**

USI

A dispersing agent, described as being acid-stable, is recommended for use wherever wetting, thickening or dispersing agents are used in the presence of acids, bases or mineral salts. **(No. 019)**

USI

A new sealing material, used to seal the proximity fuse against moisture, is now available for use on metal, glass, plastics or wood. **(No. 020)**

USI

A corrosion-proofing compound, intended to protect surfaces against corrosion by water and chemicals such as those used in plating and rinse tanks, may be applied by brush, spray or dipping. **(No. 021)**

USI

pH test papers are announced which permit readings in steps of 0.25 pH through the range from pH 1.0 to pH 14.0. **(No. 022)**

USI

To make textiles water resistant, a wax emulsion is offered for application by simply adding it to the rinse water. Mildew repellency is another feature claimed. **(No. 023)**

USI

A new desizing agent, described as an enzyme in powdered form, is claimed to be nine times as effective as liquid desizers in removing starch and gelatine sizings from textiles. **(No. 024)**

USI

A sealing compound, developed for use on pipe threads and gaskets, is said to be impervious to oil, gasoline and other petroleum-base solvents, and to remain flexible so as to contract and expand with the metal. **(No. 025)**

USI

Novel finishes, in a wide variety of effects, is one of the claims made for a new spray gun that applies two different colors at the same time. **(No. 026)**

USI

A synthetic wax, described as white, crystalline and odorless is said to have promising possibilities in cosmetics, water-repellent compositions, film modifiers and plasticizers. **(No. 027)**

USI

Analysis of combustibles content of a gaseous mixture, and control of this content, is the announced function of a new automatic instrument, claimed to be responsive to changes of 0.05 per cent. **(No. 028)**

USI

To strip baked finishes, a new solution which may be applied by brush, dip or spray, is said to minimize necessity for scrubbing parts. **(No. 029)**

USI

What you should know about our big new radio show

It's "Celebrity Club"!

A half-hour show, "Continental Celebrity Club" has *everything* . . . a famous songstress, a top-notch comedian, genial host John Daly, a galaxy of guest stars, Ray Block and his orchestra, and a stirring dramatization of "the story behind the star." It's big-time!

Millions Listen!

Rating reports tell us millions of folks tuned in every week last year to our "Report to the Nation." Our exciting new show—on at the same time—is expected to become even *more* popular!

Folks Love It!

"Wonderful!" "Exciting!" "Entertaining!", say the fan letters that pour into Continental's offices daily. And—remember—a friend of ours is a friend of *yours!*

Coast to Coast!

147 stations on the Columbia Broadcasting Company's far-flung national network. Reaches into every nook and cranny of the great mass market that is America.

Famous Celebrities!

Stars of stage, screen and radio, as well as colorful, prominent personalities from other walks of life, are featured on every program . . . a big reason why Continental Celebrity Club draws so many listeners!

Sells for You!

Hard-selling (but easy-to-listen-to) commercials tell the American buying public the value of your products. It's your show as much as ours!

REMEMBER CONTINENTAL!

The only can company on the air

Continental's big radio show is doing a big job for you. Keep your eye on Continental and on our Triple C—the trade mark that stands for the best in quality, best in service.

Tune in!

"CONTINENTAL CELEBRITY CLUB"

(SAT. AT 10:15 EST OVER CBS)

It's for you!

CONTINENTAL CAN COMPANY

100 East 42nd Street, New York 17, New York

LABORATORY NOTEBOOK

Soap Films Useful In Laboratory Studies

Chemists are familiar with soap as a detergent and with the fact that standardized soap solutions are recognized reagents for testing under hardness. However, soap has many other uses in and about the laboratory.

Soap films and soap bubbles are extensively employed in stress studies, in hydrocarbon explosion and flame spread investigations and in other research procedures. A standard soap solution for such soap film experiments consists of:

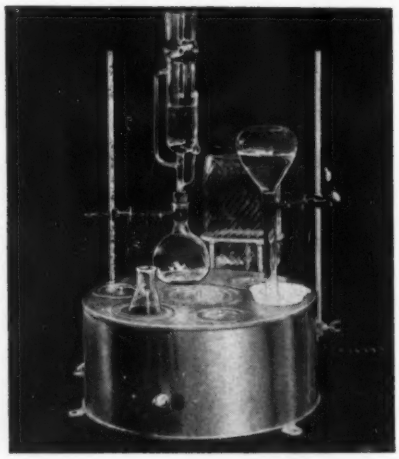
Pure castile soap	1 oz.
Distilled water	8 oz.
Pure glycerine	4 oz.

The soap in thin shavings, is dissolved in the water and the glycerine added. After thorough mixing the solution is allowed to stand for a while, after which the clear fluid at the bottom may be siphoned off and used for experimental purposes. It is said to keep indefinitely.

Soap is a valuable lubricant in many phases of laboratory work and with many types of apparatus. The foaming properties of soap are also useful, as, for example, in testing leaks in positive gas systems. The suspected joint is painted with a soap solution and if bubbles form, the source of leakage is promptly apparent.

Portable Water Bath

The Barnstead Still & Sterilizer Co., Inc., has designed a new electrically heated portable water bath featuring an automatic bottle feed. Other desirable improvements embodied in this utility apparatus are an inside shelf, for immersion heating; rod clamps permanently mounted; a test tube holder; flush-mounted switches; and a pilot light. The bath has a monel metal exterior and is lined with tinned copper. Measurements are: diameter 15″, height of body 7″, height to top of bottle 15″. It requires a bench space of 18″ x 21″.

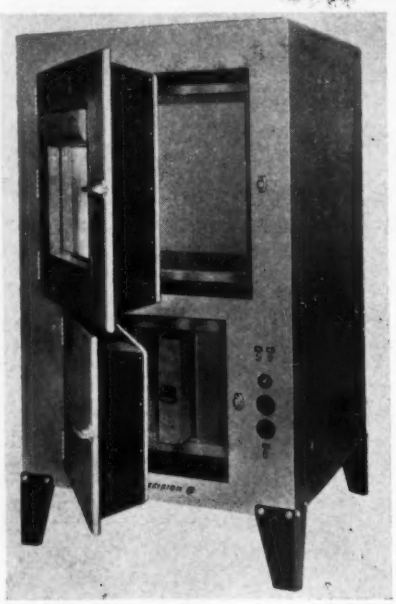


The automatic bottle feed, a new idea in water baths, will operate for more than 10 hours on low heat and 4 to 5 hours on high heat. By using distilled water in this bottle, scale formation may be prevented inside the bath. Rubber hose connectors are provided for continuous operation from running water supply if desired.

Cold Cabinet and Aging Bath

The Precision Scientific Company announces its new Vari-Temp cold cabinet.

This cabinet is available in two sizes,



1 cu. ft. capacity and 8 cu. ft. capacity. It operates with dry ice and was designed and developed to satisfy all the cold tests conditions encountered and required by present day testing techniques, from —90° F. to +220° F. The vertical front opening door provides easy access to a spacious chamber, sufficiently large to hold the various pieces of apparatus used in making the Youngs Modulus test of natural and synthetic elastomers at normal and sub-normal temperatures, according to ASTM D-797. The apparatus and specimens under test are readily visible at all times since a seven pane sealed window unit prevents condensation and frosting. Ready visibility is insured by a fluorescent light which is shielded to prevent both direct and indirect glare. Thermometers and instruments in any part of the chamber can be easily read from the outside.

The incorporation of a heating unit in this cold chamber allows a full temperature testing range of from —90° F. to +220° F.

Another product of the same company is a new aging bath.

This new bath is an oil immersion type for aging rubber or elastomers in oils or liquids in test tubes, according to ASTM D-471 and D-735.

Capacity of aging bath is 24 test tubes, 38 mm dia. x 200 or 300 mm long. The test tubes are supported in an adjustable rack which can be readily removed when desired.

Temperature of bath is 35 to 200° C., with an accuracy of ±1° C.; steel-sheathed immersion heaters controlled by an adjustable, hydraulic thermostat heats the bath providing uniform, constant temperature; a ball-bearing, fully-enclosed resilient-mounted motor stirrer provides complete circulation.

This bath can also be used for aging rubber and elastomers in air in test tubes. Condenser tube rack and test tube holders can be easily removed making it an ideal bath for general utility work.

Stopcock Lubricant

TruTest Laboratories, Inc., have developed the "TruTest" stopcock lubricant to meet the need for an all-purpose, stainless, reasonably priced, thoroughly resistant lubricant that prevents sticking of stopcocks of all types on laboratory equipment.

Non-volatile, with low vapor pressure, "TruTest" Lubricant is resistant not only to ordinary acids, methanol, acetone, alcohols, benzol and alkalies, but to hot lye as well. It is insoluble in water and is compatible with all aqueous reagent solutions.

Its consistency, about the same as vaseline, remains unchanged over a wide temperature range, from-40° C. to approximately 93° C. It will not freeze, stiffen or lose its lubricating quality at any elevated temperature within its operating range. Melting point is approximately 120° C. (248° F.).

Widely applicable for lubricating metal, glass and ceramic stopcocks on all types of laboratory apparatus, "TruTest" Lubricant has other fields of usefulness in the laboratory, particularly as a facilitating lubricant in fitting and removing rubber connections on apparatus. It is also used for sealing purposes, where its uniform consistency and non-volatility make it highly serviceable. Its film strength makes it possible to obtain completely satisfactory and dependable stopcock lubrication with a minimal application of lubricant. This not only conserves the lubricant but reduces any danger of contaminating reagents or materials under test.

A liberal trial sample will be furnished to any laboratory requesting it.

BOOKLETS & CATALOGS

Chemicals

A877. CHLORINATED LIME is the subject of a recent bulletin of the Pennsylvania Salt Mfg. Co.

A878. DRYING METALS. "The Qualitative and Quantitative Determination of Drying Metals in Driers and Surface Coatings" titles a new booklet that has been issued by the Nuodex Products Co.

A879. MOLDING MATERIAL. "Selecting the Right Thermosetting Molding Materials" titles a 36-page booklet recently issued by the Bakelite Corp.

A880. PENICILLIN. A booklet, "Illustrated Story of Penicillin Production," has been made available by the Heyden Chemical Corp.

A881. PLASTICS. Durite Plastics, Inc. has issued 8-page bulletin (No. 24) describing the use of resins for plaster of paris induration.

A882. PLASTICS. "Plastics Primer" titles a folder which has been made available by Durez Plastics and Chemicals, Inc.

A883. PLASTICS. "The Watertown Book of Plastics" titles the new 44-page book recently issued by the Watertown Mfg. Co.

A884. RESINS. A new 8-page price schedule of synthetic resin products has been issued by U. S. Industrial Chemicals, Inc.

A885. RESINS. The Textile Resin Department of American Cyanamid Co. has announced the release of a bulletin (No. 109) describing the properties and uses of Aerotex Resin M-3.

A886. SOAP BUILDER. The Pennsylvania Salt Mfg. Co. has just issued a 4-page leaflet of Pensal, their soap builder.

Equipment—Methods

F545. ALLOY WELDING. Arcos Corp. has a 20" x 30" reference chart of high and low alloy welding electrodes, including tables on corrosion resistance, heat resistance, as well as current and voltage tables.

F546. ARC WELDING. A 16-page illustrated booklet, describing the new "Bumble Bee" AC transformer arc welding machine, can be obtained from the Air Reduction Co.

F547. BUCKET CRANE. The Harnischfeger Corp. has a new 28-page booklet (No. C9-1) available, describing P&H grab bucket cranes.

F548. CONDENSATE RETURN SYSTEM. The new high pressure condensate system of the Cochrane Corp. is describel in a recent publication (No. 3250).

F549. CONVEYOR. The new oscillating-trough conveyor of Link-Belt Co. is described in a 4-page folder (No. 2088).

F550. CONVEYORS. The various types of gravity case conveyors of Speedways Conveyors, Inc. are described and pictured in a 4-page folder (No. 1045-100M).

F551. COPYING EQUIPMENT. The equipment and its potential uses of the American Photocopy Equipment Co. is described in a recent 16-page booklet.

F552. CORROSION RESISTANT MASONRY is the subject of a 52-page bulletin (No. 810), available from U. S. Stoneware Co.

F553. DEAERATION and its effectiveness in controlling corrosion is the subject of a 20-uage booklet recently issued by the Elliott Co.

F554. DRUM OPENING TOOL. The O'Brien drum-opening tool of the Merrill Brothers is described in a recently issued folder.

F555. DUST COLLECTORS. The Claude B. Schneible Co. has issued a 20-page bulletin (No. 310) describing their wet method dust control equipment.

F556. EARTH MOVING MACHINERY. The Traxcavator, a tractor excavator, is described and pictured in a 12-page booklet of the Trackson Co.

F557. EJECTORS. "Steam-Jet Air Ejectors" titles a recent bulletin (No. RP-284), which is available from the Worthington Pump and Machinery Co.

F558. ELECTRODES. "Arc Welding Electrodes" titles the new 32-page illustrated catalog published by Wilson Welder & Metals Co.

F559. ELECTRONIC COUNTERS. The Hunter Instrument Co. has issued a comprehensive bulletin describing their new 2-decade electronic high speed counters.

F560. FLOOR PROTECTION. The Building Products Division of L. Sonneborn Sons, Inc. tells how Lapidolith Liquid can harden concrete and terrazzo floors.

F561. SPONGE RUBBER. The Sponge Products Co. has issued a 4-page circular on its cellular rubber products.

F562. STEAM GENERATOR. New illustrated literature describes the "Econotherm Generator," a fully automatic self-contained unit put out by C. H. Dutton Co.

F563. THAWING PITS. Bulletin No. 1040 of the Hauck Manufacturing Co. describes equipment and installations for thawing frozen hopper-car doors.

F564. TIRES. A 39-page booklet, entitled "How to Save Money on Industrial Hauling Jobs and Equipment," describing the advantages, use and specification of tires for industrial trucks, has been issued by the B. F. Goodrich Co.

F565. VACUUM CLEANERS. Bulletin F-4 of the Allen Billmyre Co. describes their line of portable industrial vacuum cleaners.

F566. WATER BATH. A new laboratory water bath of the Barnstead Still and Sterilizer Co., Inc., is described in their bulletin No. 108.

CHEMICAL INDUSTRIES TECHNICAL DATA SERVICE

Chemical Industries, 522 Fifth Ave., New York 18, N. Y. (1-6)

I would like to receive the following free booklets and catalogues.

A877	A882	F545	F550	F556	F562
A878	A883	F546	F551	F557	F563
A879	A884	F547	F552	F558	F564
A880	A885	F548	F553	F559	F565
A881	A886	F549	F554	F560	F566
			F555	F561	

Name ..... (Position) .....

Company .....

Street .....

City ..... Zone ..... State .....

4 VERSATILE VARNISH RESINS... Back on the job!

In the past months since V-J Day, many varnish-makers have "rediscovered" these four veteran S & W varnish resins. Immediately available in any desired quantity, they can be used with a wide range of oils to produce tough, durable varnish, enamel, or paint films. They're easy to work with and are reasonably priced. Write or phone U. S. Industrial Chemicals, Inc. for samples and specifications.

S & W AROCHEM 335

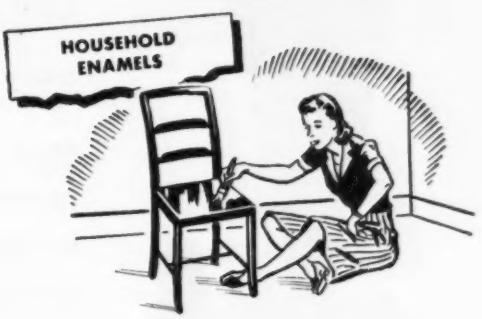
This modified phenolic resin works equally well with most oils in rubbing varnishes, implement, and machinery finishes, structural primers, etc. AROCHEM 335 kettles easily, has good solubility and promotes rapid bodying and hardening. Use where minimum after-yellowing is important.

S & W AROCHEM 365

Good chemical resistance and low cost characterize this modified phenolic resin, widely used in floor varnishes, colored utility enamels, chassis enamels, etc. AROCHEM 365 offers high gloss and alkali resistance, short tack-free time, and good overnight hardness.

S & W AROCHEM 603

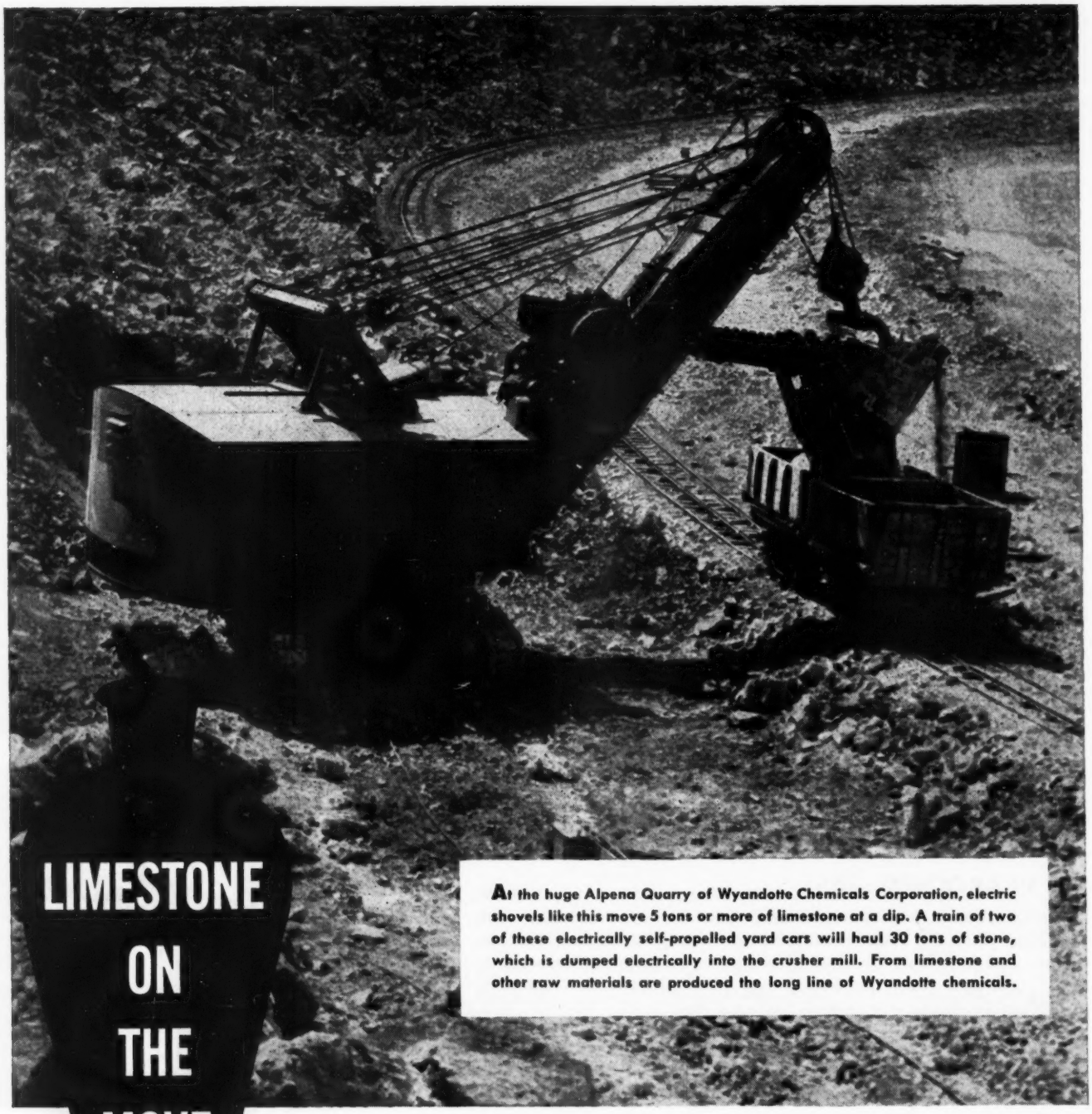
Developed for good performance with the "soft" oils, AROCHEM 603 is a non-phenolic resin which yields fast-drying vehicles and films with good color retention. Especially adaptable for "white" formulations. Varnishes made with it body very fast. Recommended for porch and deck paints, quick-drying enamels, tin decorating finishes, etc.



S & W AROCHEM 607

Similar to S & W Arochem 603, but higher in synthetic condensate content, this resin also has a higher melting point and will consequently body and dry faster. Color retention and durability are further improved.

U.S. INDUSTRIAL CHEMICALS, INC.
60 East 42nd Street, New York 17, N. Y.



LIMESTONE ON THE MOVE

At the huge Alpena Quarry of Wyandotte Chemicals Corporation, electric shovels like this move 5 tons or more of limestone at a dip. A train of two of these electrically self-propelled yard cars will haul 30 tons of stone, which is dumped electrically into the crusher mill. From limestone and other raw materials are produced the long line of Wyandotte chemicals.

WYANDOTTE CHEMICALS CORPORATION

ONE OF THE WORLD'S GREAT PRODUCERS OF CHEMICALS

SODA ASH	CALCIUM CHLORIDE	AROMATIC INTERMEDIATES
CAUSTIC SODA	CHLORINE	DRY ICE
BICARBONATE OF SODA	HYDROGEN	Other Organic and Inorganic Chemicals
CALCIUM CARBONATE	SODIUM ZINCATES	

WYANDOTTE CHEMICALS CORPORATION
MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN

Wyandotte
REG. U. S. PAT. OFF.

NEWS OF THE MONTH

U. S. To Utilize Enemy Synthetic Fuel Equipment

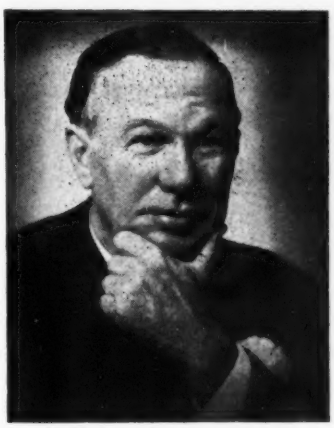
To save time in carrying out the objectives of the synthetic liquid fuels research and development program, the Bureau of Mines has taken steps to bring to this country several thousand tons of equipment and supplies from captured German and Japanese synthetic fuel plants and laboratories, R. R. Sayers, director of the Bureau, has announced.

The Navy Department has volunteered to aid the Bureau in obtaining hydrogenation and oil-refining pilot plant units which were found intact at a Japanese naval installation, and requests have been submitted to the War and Commerce Departments for similar assistance in obtaining German equipment for test purposes. Most of Germany's synthetic fuel plants are in the British and Russian zones of occupation, but the equipment desired also is available in those areas occupied by American forces.

At the same time, Dr. Sayers has said, the Bureau has agreed to cooperate with the Navy Department in a mission to investigate Japanese developments in the fields of synthetic fuels, petroleum, and lubricants. Information obtained is expected to aid both the Navy and Interior Departments.

Bureau engineers recently returned from a similar mission to Europe where they inspected the bomb-twisted remnants of German synthetic liquid fuel plants, interrogated plant personnel, and collected plant-operation and research documents. From information obtained on this mission, they have compiled a list of German equipment desired, dimensions and weights, and the location at which each item is likely to be found.

Bobst Now Chief Executive Of William R. Warner



Elmer H. Bobst has assumed the presidency and general direction of William R. Warner & Co., Inc. Mr. Bobst, former president of Hoffman-La Roche, Inc., succeeds G. A. Pfeiffer, who is retiring at the age of 73.

Agricultural Information Exchange Resumed

Information on scientific developments and results of research by the United States Department of Agriculture during the war years will, within a few months, again be available to scientists throughout the world through the document exchange plan which the Department has followed for many years.

Before the war the Department of Agriculture's publications, particularly those of technical type, were sent to many foreign countries. In return the research and scientific publications of these countries were made available to agricultural workers of the Department and the country as a whole through the Department of Agriculture Library.

After war broke out no printed materials could be mailed from this country into enemy or conquered territories at war, and this automatically suspended almost half of those on the Department of Agriculture foreign lists. Mailing into other countries was in many cases also withheld because of the lack of shipping space for printed materials.

Publications issued by the Department during the war were placed in boxes and held in reserve for shipment abroad after hostilities ended. Now almost 300 boxes containing nearly 300,000 copies of bulletins and circulars are awaiting shipment.

Carbide Elects Vice-Presidents

Fred H. Haggerson, president, Union Carbide and Carbon Corporation, has announced the election by the board of directors of the following officers of the corporation:

Joseph G. Davidson, vice president—Chemicals Division

Stanley B. Kirk, vice-president—Industrial Gases Division

James W. McLaughlin, vice-president—Plastics Division

William J. Priestley, vice-president—Alloys and Metals Division

Arthur V. Wilker, vice-president—Carbon Division

H. Earl Thompson, vice-president—Engineering

Robert J. Hoffman, vice-president—Industrial Relations

Morse G. Dial, secretary-treasurer

All the new officers of the parent corporation are officers of subsidiary companies. J. G. Davidson is president of Carbide and Carbon Chemicals Corporation; S. B. Kirk is president of The Linde Air Products Company; J. W. McLaughlin is president of Bakelite Corporation; W. J. Priestley is president of Electro Metallurgical Co. A. V. Wilker is president of National Carbon Company, Inc.; H. E. Thompson is vice-president and director of Carbide and Carbon Chemicals Corporation and Bakelite Corporation; R. J. Hoffman is director of various subsidiaries and president of Union Carbide and Carbon Research Laboratories, Inc.

Holmes Heads G. E. Chemical Department

T. J. Holmes has been appointed sales manager for the New England district of the chemical department of the General Electric Company.

MacNaughton Chosen TAPPI Medalist

William G. MacNaughton, Engineer for the Newsprint Service Bureau, New York, N. Y., will be the 1946 recipient of the gold medal of the Technical Association of the Pulp and Paper Industry. The medal will be awarded to Mr.

MacNaughton at the annual meeting of the Technical Association of the Pulp and Paper Industry at the Commodore Hotel, New York, N. Y., on February 28, 1946.

Ethyl Appoints Irwin

William Irwin has been named assistant resident manager of the Ethyl Corporation manufacturing plant in Baton Rouge, La. Mr. Irwin, who comes to the Ethyl Corporation after twelve years with E. I. du Pont de Nemours and Co., supervised construction at the atomic bomb project in Oak Ridge, Tenn. in 1943 and was associated the following year with the Hanford project.

Victor Chemical Plans Phosphorus Plant

Victor Chemical Works is planning the erection of a new electric furnace plant in Florida for the production of elemental phosphorus. Initial construction will involve an investment of over $2,000,000, according to Walter B. Brown, executive vice-president of the company. This will be the largest electric furnace in the country and, when finished at the end of 1946, will make Victor the largest U. S. manufacturer of phosphorus.

Victor is in process of acquiring tidewater property in western Florida near the richest phosphate rock fields in the nation for the plant site. Long-range plans call for quadrupling of the plant's capacity as markets for phosphorus and phosphate products increase.

Ninety per cent of the nation's elemental phosphorus production now comes from Victor, Monsanto and TVA plants in the Tennessee Valley area where there is a large public source of water-generated power. The new Victor unit will use steam power produced by a private public utility serving a large section of Florida.

Milton Harris Receives Olney Medal

Milton Harris, director of research, Milton Harris Associates, Washington, D. C., has been awarded the Olney Medal by the American Association of Textile Chemists and Colorists. The award was made at the annual dinner of the association, Jan. 5, at the Hotel Pennsylvania, New York. Dr. Harris, formerly was director of research for the Textile Foundation and the Textile Research Institute, and at one time was research associate of the A. A. T. C. C. During the war, a large part of Dr. Harris' work has been for the Quartermaster General.

CALENDAR *of* EVENTS

AMERICAN GAS ASSOCIATION CONFERENCE ON INDUSTRIAL AND COMMERCIAL GAS will be held in Toledo, Ohio, Thursday, and Friday, March 28th and 29th at the Commodore Perry Hotel.

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS will hold a regional meeting at the Hotel Biltmore in New York City, February 26 and 27, 1946.

DRUG, CHEMICAL AND ALLIED TRADES SECTION OF THE NEW YORK BOARD OF TRADE will hold the regular annual dinner in March, 1946.

SOCIETY OF PLASTICS ENGINEERS, plastics exhibit will be held in Detroit's Convention Hall from Monday, January 7 through January 11, 1946. The annual meeting of the society will be held January 7, 8, and 9 in the east wing of the Horace H. Rackham Educational Memorial.

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS will hold the Victory Convention, January 3-5, 1946 at the Hotel Pennsylvania, New York.

THE ELECTROCHEMICAL SOCIETY will hold its Birmingham Congress at the Tutwiler Hotel, Birmingham, Alabama, April 10 to 13, 1946.

AMERICAN CERAMIC SOCIETY will hold its 48th annual meeting at the Hotel Statler, Buffalo, April 28—May 1.

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS will celebrate its 75th anniversary at the Waldorf-Astoria, New York, September 16-18, 1946.

AMERICAN SOCIETY FOR TESTING MATERIALS will hold the 49th annual meeting in Buffalo, N. Y., June 24 to 28, 1946. The 1946 Spring Meeting will be held in Pittsburgh during the week of February 25 to March 1.

NATIONAL FARM CHEMURGIC COUNCIL, INC., will hold its deferred 11th annual meeting at the Statler Hotel, St. Louis, Mo., March 18-20, 1946.

PACKAGING EXPOSITION of 1946 will be held in the Public Auditorium, Atlantic City, N. J., April 2 to 5, inclusive, 1946, sponsored by the American Management Association.

PRODUCTS OF TOMORROW EXPOSITION will be held at the Coliseum in Chicago, April 27—May 19, 1946.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY will hold the national meeting at the Hotel Commodore, New York, during the week of February 24, 1946.

20TH EXPOSITION OF CHEMICAL INDUSTRIES will be held at Grand Central Palace, New York, February 25 through March 2, 1946.

Stauffer Chemical Takes Over Nevada Plant

Stauffer Chemical Company has announced the expansion of operations in the caustic soda and chlorine section of the Las Vegas, Nevada, magnesium plant under lease from the Reconstruction Finance Corporation.

Using only half of the huge productive capacity of the Las Vegas facilities, Stauffer is offering other manufacturers an opportunity to establish branch factories at the location in a cooperative arrangement with RFC.

One of the largest and most modern chlorine-caustic soda units in the country, the plant is a part of Basic Magnesium, Inc., which was closed down following the cessation of hostilities in Europe. Built to supply the huge magnesium setup with chlorine, the new Stauffer project draws its electric power from the hydroelectric station at Boulder Dam, only a few miles from the plant.

Additional information concerning buildings and equipment can be obtained from E. T. Ross, Room 2710, 420 Lexington Avenue, New York, N. Y., who is working jointly with the Reconstruction Finance Corporation and the Stauffer Chemical Company toward the development of this area.

WPB Officials to Serve With CPA

Further appointments of War Production Board officials to serve with the Civilian Production Administration have been announced by Fred Glover, Director of the newly established Bureau of Reconversion Operations.

The Bureau is one of five recently announced by OPA Administrator J. D Small to take over the remaining functions, powers, duties and personnel of WPB operations. It will consist of eight industry divisions, the result of a consolidation of WPB's original 31 industry bureaus and divisions.

Mr. Glover announced the appointment of his immediate staff and the appointment of the eight Divisional Directors as follows:

Deputy Director, Irving C. White; Assistant to the Director, William Easton; Rubber Division Director, W. James Sears; Equipment Division Director, Hugh M. Beshers; Forest Products Division Director, George V. Johnson; Metals and Minerals Division Director, F. H. Hayes; Textiles Division Director, Herbert Rose; Chemicals Division Director, Lawrence Brown; Construction Division Director, Charles P. Redick; Consumers Hard Goods Division Director, Carroll Burton.

Parsons Retires As A.C.S. Secretary

Charles Lathrop Parsons, secretary of the American Chemical Society since 1907 and its business manager since 1931, has retired from both offices. Alden H. Emery, assistant secretary and assistant business manager of the society, has succeeded him.

Dr. Parsons, 78, former chief chemist of the United States Bureau of Mines, will continue to serve the society, having recently been elected to the board of directors for 1946. He was the second recipient of the Nichols Medal and in 1932 received the Priestley Medal for "distinguished service to chemistry."

Mines Bureau Acquires Missouri Plant

Secretary of the Interior Harold L. Ickes has announced that the Bureau of Mines will take over the Missouri Ord-

nance Works, near Louisiana, Mo., a plant that made synthetic ammonia during the war, and convert it into a demonstration plant for the production of gasoline and oil from coal and lignite. An agreement with the War Department whereby the $17,500,000 plant will be transferred to the Interior Department for reconversion as a synthetic liquid fuels demonstration plant has just been concluded.

The decision to establish the coal demonstration plant at Louisiana, Mo., completes the site-selection phase of the five-year, $30,000,000 program under which the Bureau of Mines will develop and make available to private industry the "know how" for the production of synthetic liquid fuels from American coals and oil shales. Other installations now under construction and their sites, all announced previously, include the coal research and development laboratory at Bruceton, Pa., an oil-shale demonstration plant near Rifle, Colo., and an oil-shale research and development laboratory at Laramie, Wyo. The Missouri plant and two other sites were obtained without depleting synthetic fuels funds by the purchase of private lands.

CPA Orders Retained

Civilian Production Administration orders in effect as of December 20, 1945:

Automotive Branch
L-258 Salt and Petroleum Type Anti-Freeze Solutions
L-352 Export of Automobiles and Trucks

Chemicals Division
M-54 Molasses
M-131 Cinchona Bark and Cinchona Alkaloids
M-300 Chemicals and Allied Products
M-333 Tapioca Flour
M-384 Lead Chemicals
M-387 Rosin

Containers Branch
L-103 Glass Containers and Closure Simplification
Schedule A Distilled Spirits
Schedule B Malt Beverages
Schedule C Certain Food Products
Schedule D Wines
Schedule E Protective Coatings

Distributors Inventory Branch
L-63 Suppliers
L-219 Consumers' Goods Inventories

Imports Division
M-63 Imports of Strategic Materials

Mining Branch
L-269 Mining Equipment

Miscellaneous Minerals Branch
M-89 Corundum
M-285 Uranium

Paper and Paperboard Branch
M-241 Paper and Paperboard

Printing and Publishing Branch
L-240 Newspapers

Reconversion Priorities Bureau
M-293 Scheduled Products

Rubber Division
R-1 Rubber, Synthetic Rubber, Balata and Products Thereof
Appendix I Rubber, Synthetic Rubber, Balata and Products Thereof
Appendix II Manufacturing Regulations
Appendix V Sorting and Packing of Scrap Tire Parts

Steel Branch
M-21 Iron and Steel Production

Textiles Division
L-85 Apparel for Feminine Wear
Schedule 1 Women's, Misses' and Junior Misses' Dresses
Schedule 2 Women's, Misses' and Junior Misses' Blouses
Schedule 3 Women's, Misses' and Junior Misses' Coats, Fur Coats, Toppers, Suits, Jackets, Shirts, Slacks, Overalls, Coveralls, Play Suits, and Shorts
Schedule 4 Feminine Neckwear
Schedule 5 Children's Apparel for Outer Wear
L-99 Cotton Textile Production
L-116 Feminine Lingerie and Certain Order Garments
L-118 Feminine Lounging Wear and Certain Other Garments
L-181 Men's Work Clothing
L-224 Clothing for Men and Boys
M-47 Burlap and Burlap Products
M-51 Pigs' and Hogs' Bristles
M-84 Cordage Fiber, Cordage Yarn and Cordage
M-85 Kapok
M-217 Footwear

M-221 Textile Bags
M-277 Vegetable Tanning Materials
M-310 Hides, Skins and Leather
M-317 Cotton Textile Distribution and Sale Yarn Production
M-317a Cotton Fabric Preference Ratings and Restrictions
M-328 Provisions Applicable to Textiles, Clothing and Related Products
M-328b Special Programs: Textile, Clothing and Related Products
Schedule A Special Programs: Textile, Clothing and Related Products
Schedule C Special Program for Cotton Fabrics for Civilian Apparel Items
Schedule D Special Program for Cotton Fabrics for Nurses' Uniforms
Schedule F Special Program for Work Gloves
Schedule J Special Program for Rayon Civilian Items
Schedule K Special Program for Wool Civilian Items
M-375 Work Gloves

Tin, Lead and Zinc Branch

M-38 Lead
M-43 Tin
M-81 Cans
M-112 Antimony
M-325 Tinplate Scrap

Utilities Branch

M-316 Bitun inous Coal
M-318 Anthracite Coal
U-2 Communications

COMPANIES

Celanese and Tubize Merge

The directors of Celanese Corporation of America and of Tubize Rayon Corporation recently signed an agreement of a merger of Tubize Rayon Corporation with Celanese Corporation of America.

In the merger it is proposed that: each outstanding share of 4¾ per cent preferred stock of Tubize Rayon Corporation shall become and be converted into one share of first preferred stock, $4.75 series of Celanese Corporation of America; and that each outstanding share of common stock of Tubize Rayon Corporation shall become and be converted into ⅔ of a share of common stock of Celanese Corporation of America. Special meetings of shareholders of both corporations to take action on the proposed merger are expected to be held some time during the month of January, 1946.

George Mann & Co., Inc., has appointed CHARLES R. MANN as manager of the Stoneham branch of the company. Mr. Mann joined the company in 1938 as assistant treasurer after his graduation from Dartmouth College.

Du Pont Creates Petroleum Chemicals Division

Consolidation of two divisions of the organic chemicals department into a single unit under the name of the petroleum chemicals division has been made known by E. I. du Pont de Nemours and Company. The merger combined the former alcohol and tetraethyl lead divisions, operating plants at Deepwater, N. J., and Baton Rouge, La.

J. L. Stecher, who was manager of the tetraethyl lead division, was appointed division manager, while William F. Krug, Jr., formerly manager of the alcohol division, was named assistant manager of the new unit.

Other appointments include: J. R. Sabina, technical director; Dr. J. M. Herndon, division production manager; and E. M. Fanning, assistant sales manager for petroleum chemicals. G. T. Barnhill, Jr., will remain as sales director for alcohol and camphor.

A general laboratory for service to the ceramics industry will be established in Columbus, Ohio, by the Electrochemicals Department of the Du Pont Company. A one-story concrete building at Pennsylvania Avenue and Goodale Street has been leased as headquarters for the technical service staff and field representatives covering the entire industry.

R. Galbraith, manager of the ceramic products division, said the laboratory

AND THAT'S THAT....

Standard has no manufacturing reconversion problem, for our peacetime production comes from the same equipment and processes that we used for war production. So, as government requirements diminish, we are directing more and more of our output to civilian uses.

All during war-production years, Diamond Research has been constantly studying the manufacture and application of Standard Silicates—perfecting techniques, developing new uses. As your production grows, you can turn these developments to your own advantage by specifying STANDARD SILICATES.

DIAMOND ALKALI COMPANY • Standard Silicate Division

Plants at CINCINNATI JERSEY CITY
LOCKPORT, N. Y. MARSEILLES, ILL.
DALLAS, TEXAS

General Offices • PITTSBURGH, PA.

would begin operating soon after the first of the year with about 20 men and women employed. O. T. Fraser, field service representative, whose headquarters have been in Columbus, will be in charge of the laboratory.

Keevil Heads Ordnance Research for A. D. Little

Charles S. Keevil has been appointed to head a research program at A. D. Little, Inc., undertaken for the Artillery Division of the Ordnance Department, U. S. Army, to provide research and engineering services in connection with an experimental program for determining the feasibility of large-scale long-term storage of Ordnance equipment.

Tennessee Eastman Reveals Expansion Plans

Announcement has been made that the work of expanding the production of Tennessee Eastman Corporation, Kingsport, Tennessee, now under way, will call for the expenditure of more than $5,000,000 during each of the years 1946 and 1947.

James C. White, president of Tennessee Eastman, states that operation of three buildings is scheduled to begin by July 1, 1946. One of these will produce cellulose ester. Another will produce acetate yarn and a third building will produce acetate staple. Completion of the present work is expected to result in the addition during the next two years of about 2,000 employees. The number now employed is about 7,000.

Celanese Buys Plant

Acquisition of a new plant at Belvidere, New Jersey, for the production of chemicals and plastics, has been made known by Celanese Corporation of America. Present plans call for an ultimate expenditure of more than $10,000,000 and an employment of about 750 persons in the first phases of the operation.

Situated on the Delaware River, the new Celanese plant was operated during the war by The New Jersey Powder Company for the manufacture of smokeless powder. One of the main reasons for the selection of the Belvidere site by Celanese is the easy accessibility to water from the Delaware River. It was stated by the company that operations at its plastics plant at Newark, New Jersey, will continue, and that an expansion of facilities amounting to 25 per cent over the next two years is in progress.

Goodrich Chemical Acquires Hycar

B. F. Goodrich Chemical Company, according to W. S. Richardson, president, has acquired the assets of the Hycar Chemical Company. Physical assets and trade names of Hycar are now owned by B. F. Goodrich Chemical Company, and all Hycar products will be marketed by the new owner. During the war years Hycar was jointly owned and operated by The B. F. Goodrich Company and Phillips Petroleum Company. The new Hycar headquarters will be in the company's main office in Cleveland. Production will continue in the company's synthetic rubber plant in Akron, according to present plans.

Chicago Plastics Joins St. Louis Company

R. J. Mott, vice-president of Commercial Plastics Company, Chicago, has announced that the firm will join its pro-

duction and distribution facilities, with St. Louis Plastic and Moulding Company. The distribution and sales facilities will be carried out from the Chicago office of the Commercial Plastics Company and the St. Louis Plastics Moulding Company, St. Louis, will provide the engineering and manufacturing services.

Company Notes

Negotiations have been completed for the purchase by INTERNATIONAL MINERALS AND CHEMICAL CORPORATION of a phosphate rock deposit near Bartow, Florida, which will be developed into the largest phosphate mining operation in the United States, according to a statement by Louis Ware, president of the corporation. The property is being purchased from an organization known as W. H. Stuart, Trustee, of Bartow, Florida, and approximately 2,000 acres of land are involved in the deal.

TENNESSEE EASTMAN CORPORATION has announced the establishment of a New York City sales offices at 10 East 40th Street. A. M. TENNEY ASSOCIATES, INC., located at the same address, will continue to act as sales representatives for Eastman acetate rayon and staple fiber.

THE SOLVAY PROCESS COMPANY, a subsidiary of Allied Chemical & Dye Corporation, announced recently that it will soon start construction of a new research laboratory at Syracuse, N. Y., which will house the research organization of the alkali division.

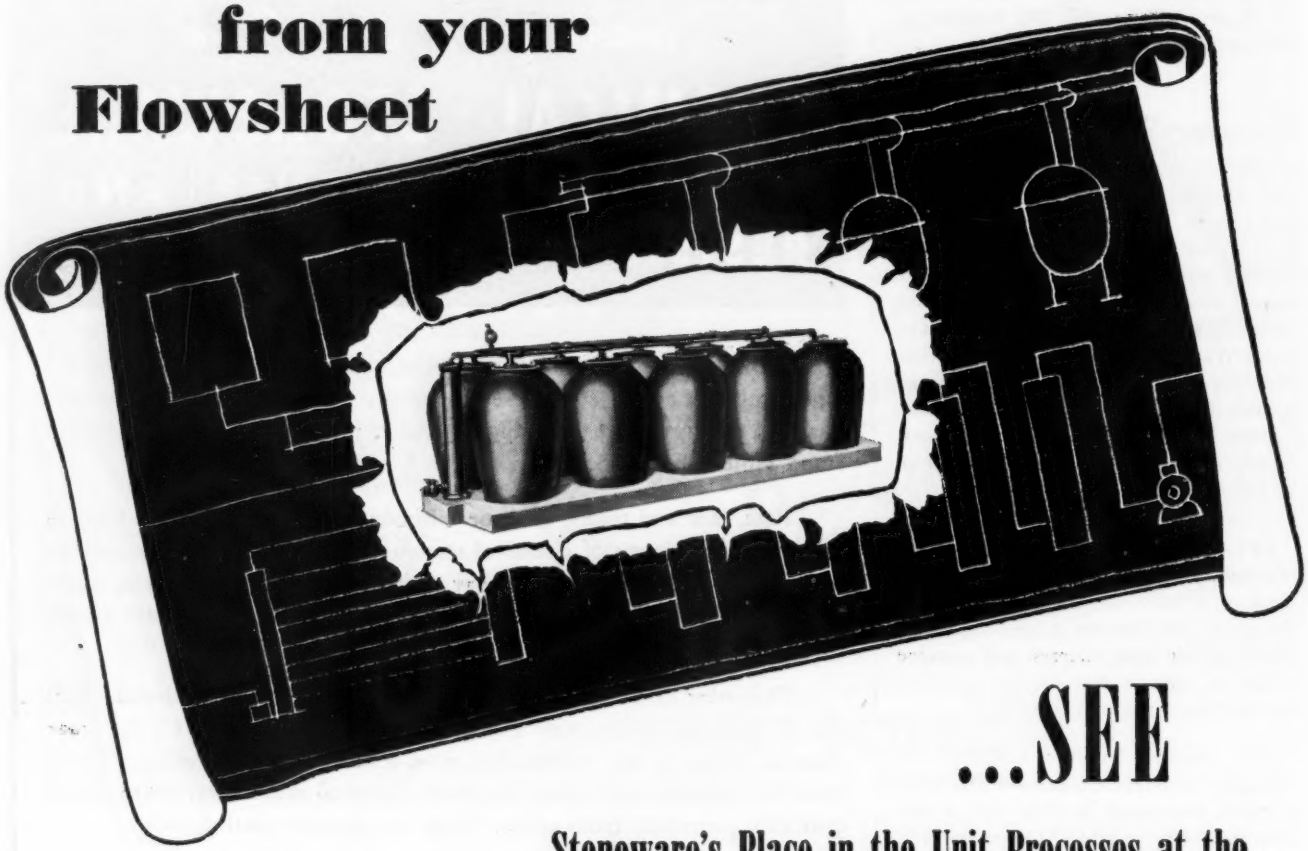
MILTON HARRIS ASSOCIATES recently has acquired an additional 3000 square feet of floor space at their present location, 1246 Taylor St., N.W., Washington, D. C. The space has been used for expansion of the chemical laboratories and for the addition of small scale equipment for experimental work on dyeing, finishing, laundering and weathering.

THE INTERNATIONAL NICKEL COMPANY, INC., has made known the opening of the Cincinnati technical section of its development and research division as of December 1, 1945. It will be located at 1715 Carew Tower, Cincinnati 2, Ohio. Richard B. Kropf, formerly district manager of the Copperweld Steel Co. at Hartford, Conn., has joined International Nickel and will be in charge of the new section.

ALLIED CHEMICAL & DYE CORPORATION is continuing for the academic year 1945-46 the graduate Fellowship plan established by it some years ago. The stipend of the Allied Chemical Fellowships has been increased from $750 to $1,000, which is exclusive of tuition and laboratory fees. As heretofore, the recipients of the awards and the type of research are selected by the schools. Any subject may be chosen

ELIMINATE CORROSION

from your Flowsheet



...SEE

Stoneware's Place in the Unit Processes at the General Ceramics Exhibit at Booth No. 2, 20th Exposition of Chemical Industries, Grand Central Palace, N. Y., Feb. 25th—March 2, 1946

IN MODERN PROCESSING plants much of the equipment for the unit processes of fluid transfer, heat exchange, absorption, reaction, etc., are subject to the ravages of corrosion. Chemical stoneware equipment for all of these processes—stoneware pumps and piping for handling corrosive liquids, storage systems, exhausters and fume ducts for vapors, stoneware coils and coolers for liquids and gases, and towers for reaction and absorption—is available. Our exhibit at the Chemical Show to be held in Grand Central Palace, February 25 to March 2, 1946, will show you how this apparatus can be used in your process to eliminate corrosion.

If you are unable to attend the show, write to us at the office nearest your plant and a representative will be glad to discuss your corrosion problems with you.

GENERAL CERAMICS AND STEATITE CORPORATION
CHEMICAL EQUIPMENT

BUFFALO: 610 Jackson Bldg. **CHICAGO:** 20 N. Wacker Drive
LOS ANGELES: 415 So. Central Ave. **PORTLAND 5, ORE.:** 410 New Fliedner Bldg.
NEW YORK: 30 Broad Street • **SEATTLE:** 1411 Fourth Ave. • **SAN FRANCISCO:** 598 Monadnock Bldg.
TACOMA: 417 Tacoma Bldg. • **HOUSTON:** 2015 Second National Bank Bldg.
MONTREAL: Canada Cement Bldg. • **TORONTO:** Richardson Agencies, Ltd., 454 King St., West
VANCOUVER, B.C.: Willard Equipment Ltd., 860 Beach Ave.

In addition to the manufacturing facilities of the Chemical Equipment Division those of the Insulator Division are also available for handling ceramic problems in all branches of industry. General Ceramics & Steatite Corporation is therefore able to offer service covering all industrial applications of ceramic products.

General Ceramics
AND STEATITE CORP.
CHEMICAL EQUIPMENT DIVISION
KEASBEY, NEW JERSEY

which is expected to prove suitable for a Ph.D. thesis. A total of 24 Fellowships are offered in 20 universities.

ADVANCE SOLVENTS & CHEMICAL CORPORATION, New York, has appointed AMERICAN OIL & SUPPLY COMPANY to represent them in the sale of their products throughout the northern New Jersey and Staten Island territory.

NEWS *of* SUPPLIERS

HEWITT RUBBER CORPORATION has named Adrian W. Smith as manager of the Restfoam Division, according to president Thomas Robins, Jr. For the past five years Mr. Smith was executive assistant to Burdette S. Wright, vice-president and general manager of Curtiss-Wright Corporation's Airplane Division. Previously he was vice-president of Dexter P. Rumsey & Co., Buffalo.

Stephen A. Brooks and seven associates, each with extensive experience in rotameter manufacture and application, have organized the BROOKS ROTAMETER COMPANY, a corporation with a capitalization of $100,000.00. A factory has been acquired at Lansdale, Pa., with 18,000 square feet of floor space and manufacture has been started upon all types of rotameters for flow rate measurement and control.

BRYANT HEATER COMPANY, Cleveland, Ohio, long a prominent producer of domestic gas heating equipment, has announced the establishment of an industrial division to handle the development and distribution of gas combustion components for industrial and process equipment. Activity in the division, which is intended to round out the Bryant position in the gas industry, is centered on the development of an improved line of mixers, injectors, burners and specialized items of gas combustion equipment.

JOHN W. MOCK, lecturer and writer on salesmanship and sales psychology, has been appointed sales manager of The Protectoseal Company, Chicago, Illinois, according to an announcement by Robert J. Christopher, director of sales. Mr. Mock will have charge of distribution of the complete Protectoseal line of safety devices for the handling and storing of hazardous liquids.

G. S. Myers has been appointed a member of the chemical engineering staff of ESHELMAN & POTTER, combustion and chemical engineers, of Birmingham and Charlotte, N. C. Mr. Myers is a graduate of Georgia Institute of Technology. He formerly was with the power department of TVA, and prior to that with the Commonwealth & Southern Power Company and the Tennessee Electric Power Company.

MORSE BOULGER DESTRUCTOR COMPANY, New York, N. Y., has purchased Chem-Feeds, Inc., Providence, R. I. and will carry on the business as the Chemical Feeders Division of Morse Boulger Destructor Company. Chem-Feeds, Inc., was started and developed by Jeff Corydon II, well-known in connection with the feeding and proportioning of chemicals. Mr. Corydon will head up this new division of Morse Boulger.

Edwin M. Perrin, advertising manager of ROBINS CONVEYORS INC., since May 1942, has been promoted to assistant manager of equipment sales. He will work directly with A. E. Conover, whose equipment sales department is supervised by H. Von Thaden, 1st vice president. Perrin will prepare sales literature and special bulletins to industries using conveyors and other materials handling machinery built by the company.

John A. Benjamin has been appointed acting general manager of CONTINENTAL CAN COMPANY'S PLASTICS DIVISION, Cambridge, Ohio, to take the place of J. E. Wolfe who has resigned, according to H. A. Eggerss, vice-president in charge of paper and plastics. Mr. Benjamin was formerly sales promotion manager of Continental's paper plant at Van Wert, Ohio.

The engineering and manufacturing enterprise founded in 1933 by Chase Donaldson and S. W. Briggs as the BRIGGS CLARIFIER COMPANY took its final peace time form on December 1, when the business was acquired by THE BRIGGS FILTRATION COMPANY, a Maryland corporation. The officers of the new company, all of whom served with the old company, are Chase Donaldson, president; S. W. Briggs, vice president; R. C. Zschiegner, treasurer; W. E. Furey, secretary-counsel; and Cecil Hopkins, assistant secretary. The directors are Chase Donaldson, Electric Power Company, president; S. W. Briggs; vice president; Richard P. Dunn, partner, Auchincloss, Parker & Redpath; Bradley J. Gaylord, vice president, The Pennroad Corporation, Wilmington, Delaware; Clark W. McKnight, Wilmington, Delaware.

The W. O. HEBLER COMPANY, Hillside, N. J. has granted an exclusive license for manufacture and sales of thermal conductivity cells under its Pat. No. 2,269,850 to Davis Emergency Equipment Co., Inc., Newark, N. J. The Davis organization, makers of gas alarm equipment, plans to incorporate the features of this license to widen the scope of their line of instruments, plans for which will be announced shortly.

MICHIGAN STEEL CASTING COMPANY, Detroit, Michigan, has announced the appointment of N. E. Philpot as manager of sales in the New York-New Jersey district.

The H. A. SMITH MACHINE COMPANY, Hopewell, New Jersey, has been renamed ROCKWELL MACHINE COMPANY. The Roskwell Machine Company is a subsidiary of the Rockwell Manufacturing Company and supplies precision machined parts to other subsidiaries and divisions of the Rockwell Manufacturing Company. The change in name is accompanied with no personnel or policy changes. Herbert S. Rockwell continues as director of operations at the Hopewell Plant.

Directors of the MERCO NORDSTROM VALVE Co., subsidiary of the ROCKWELL MFG. Co., of Pittsburgh has announced the shortening of the name to Nordstrom Valve Co. The Nordstrom Valve Co., builds lubricated plug valves, air and service cocks, lubricants and valve accessories. There are no changes in the personnel or sales policies of the company.

Bingham H. Van Dyke has been named manager of the new products department of the ELLIOTT COMPANY, Jeannette, Pa. Previously assistant to the director of research and development, Mr. Van Dyke came to the Elliott Company from the War Production Board where he was deputy chief of the heat exchanger and pressure vessel branch.

THE NIAGARA FILTER CORP., Buffalo, New York, has announced the incorporation of a Canadian affiliate, the Niagara Filter Corporation (Canada) Limited. H. A. MacKenzie, 65 Charles Street E., Toronto, Ontario, has been appointed to head up the technical sales division of Niagara Filter's Canadian corporation.

ASSOCIATIONS

NAIDM Elects Officers

At the thirty-second annual meeting of the National Association of Insecticide and Disinfectant Manufacturers, at the Hotel Commodore, December 3 and 4, 1945, officers for the coming year were elected. They are: President, N. J. Gothard, Sinclair Refining Co.; 1st vice-president, G. M. Baird, Baird & McGuire, Inc., Holbrook, Mass.; 2nd vice-president, A. W. Morrison, Socony-Vacuum Oil Co.; treasurer, John Powell, John Powell & Co.; and secretary, H. W. Hamilton, Koppers Co., White Tar Division.

New board members are: D. F. Murphy, Rohm & Haas Co.; A. A. Nelson, Chemical Supply Co.; and Jack Varley, Baird & McGuire, St. Louis. Arthur Rasmusson of Furst-McNess, Inc. was appointed for two years, while G. H. Wood of G. H. Wood, Co., Ltd., Toronto, was named for one year.

ASA Elects Bryans

Henry B. Bryans, executive vice-president and director of the Philadelphia Electric Co., has been re-elected to president of the American Standards Association. Frederick R. Lack, vice-president and manager of the Radio Division, Western Electric Co., Inc., was elected vice-president. Other officers are E. C. Crittenden, of the Bureau of Standards, as chairman of the Standards Council, and L. F. Adams, General Electric Co., as vice-chairman of the Standards Council.

Nay to Head Chicago Perfumers

Walter R. Nay, Chicago manager of the Mallinckrodt Chemical Works, has been elected president of the Chicago Perfumery, Soap & Extract Association. The retiring president is F. A. Degener of the Heyden Chemical Corp. Stanley Lind of Harry Holland & Son, Inc., was elected vice president of the Association. Carl W. Edwards of Fritzsche Bros., Inc., was elected secretary.

Robert Chew Joins John Chew

Capt. Robert P. Chew has joined his father's firm, John A. Chew, Inc. Capt. Chew, who was graduated from Princeton University, has completed two years in the Pacific with the U. S. Army. He holds the silver star..

Consulting Chemists Rename Baldwin

Robert T. Baldwin was reappointed executive secretary and assistant treasurer of the Association of Consulting Chemists and Chemical Engineers for one year. A. B. Bowers was reappointed assistant executive secretary of the association.

PERSONNEL

Phillips Joins Sugar Research Foundation

Ralph F. Phillips has been appointed assistant scientific director of the Sugar Research Foundation, it has been announced by Joseph F. Abbott, president of the foundation.

Dr. Phillips, who was formerly Assistant Professor of organic chemistry at the University of Utah, will aid Robert C. Hockett, scientific director of the foundation, in the study of the role of sugar in the diet and as a chemical raw material.

Hercules Promotes Foster

John C. Foster has been made superintendent of the Carthage, Mo., explosives plant of Hercules Powder Company. He succeeds Joseph S. Marx, who has retired. Mr. Foster arrived at the plant November 1, after more than three years as smokeless powder superintendent at the Hercules-operated Badger Ordnance Works in Wisconsin.

Penn Salt Names Warner R. Over Treasurer

Warner R. Over has been named treasurer of the Pennsylvania Salt Manufacturing Company, following the retirement of L. A. Smith who served as vice-president and treasurer.

Mr. Over, who joined Pennsylvania Salt as a clerk in 1904, was appointed secretary of the company in 1940 combining this with the title of assistant treasurer.

Baker Increases Research Staff

Ralph A. Clark, vice president of the J. T. Baker Chemical Co., has announced that the following research chemists have recently been added to their technical staff: Werner Baumgarten, of Hiram Walker & Sons, Inc.; John H. Gardner, Associate Professor of Chemistry at the Washington University in St. Louis, Mo.; Remsen Schenck and Harold Schedl.

Du Pont Makes Personnel Shifts

Ernest B. Benger, general assistant manager of the technical division of the rayon department of the Du Pont Company, has been appointed manager of the division succeeding M. du Pont Lee, who was recently named general consultant in the engineering department. A. E. Buchanan, Jr., continues in his present capacity as assistant manager of the technical division.

Appointment of Samuel G. Baker as assistant general manager of the electro-

chemicals department of the Du Pont Company has been announced by F. S. MacGregor, general manager. Mr. Baker, who has been director of the electroplating division of the department, took his new position December 1. Milton Kutz, who has been acting assistant general manager, becomes a special assistant to Mr. MacGregor, on the same date.

Anable Returns to Dorr As Advertising Director

Lieutenant Commander Anthony Anable, U. S. Naval Reserve, has rejoined The Dorr Company as director of public relations and advertising. Commander Anable, a veteran of World War I, has been on military leave from The Dorr Company since shortly after Pearl Harbor. As navigating officer of an aircraft carrier, he participated in four major naval actions in support of the invasions of Southern France, the Philippines, Iwo Jima and Okinawa.

Koppers Names Keeling

The appointment of Thomas C. Keeling as general sales manager for the tar and chemical division of Koppers Co., Inc., has been announced.

Mr. Keeling, formerly with Niagara Alkali Co., is just completing four years as a lieutenant colonel in the United States Army where he was Chief of the Chemical Section, Production Division of the War Department.

Personnel Notes

The retirement of WILLIAM A. EDSALL, for many years vice-president in charge of sales of the Attapulgus Clay Company, has been announced. He will be succeeded by ROBERT H. HUBBELL, JR. Announcement was also made that WILLIAM S. W. MCCARTER had been named technical director of the company, succeeding Mr. Hubbell.

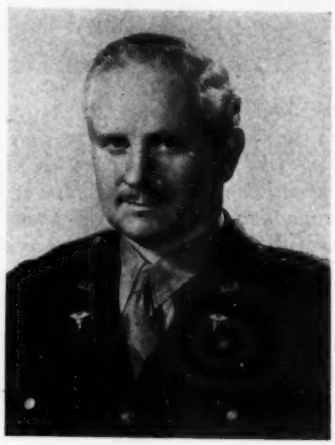
J. C. WARNER, Head of the department of chemistry at Carnegie Institute of Technology, and prominently identified

with the development of the atomic bomb, has been appointed Dean of Graduate Studies in Carnegie's College of Engineering and Science, it has been announced by President Robert E. Doherty.

The Pemco Corporation has announced the appointment of JOHN E. MARQUIS to the ceramic laboratory staff. Mr. Marquis has been research associate for the American Nepheline Corporation and for the United States Potters Association at the Engineering Experiment Station of Ohio State University.

JOHN CHARLES MOESSINGER, a chemist with General Aniline & Film Corporation since 1921, has been appointed manager of the process development department at the Rensselaer plant of the company, according to George W. Burpee, president. Dr. Moessinger has been attached to the staff of the Rensselaer plant.

Noh Directs Sales for Winthrop



Appointment of Lt. Col. Joseph G. Noh as vice president in charge of sales and promotion of Winthrop Chemical Co., Inc., has been announced by Theodore G. Klumpp, president. Since 1942, Colonel Noh has served as Director of Purchases, Medical Department, U. S. Army, directly administering the procurement of all medical supplies purchased by the Medical Department for the U. S. Army, International Aid, American Red Cross and other agencies served by the War Department.

MILO N. MICKELSON has joined the staff of the Midwest Research Institute, Kansas City, Missouri. He was formerly associated as professor of bacteriology and biochemistry at the University of Michigan. His work will be in the field of cell metabolism and micro-biofermentation.

STEPHEN H. TYNG, formerly of the Institute, W. Va., synthetic rubber plant operated by the United States Rubber Company, has been appointed to the technical sales organization of the company's

Naugatuck Chemical Division handling latex, Lotol, Dispersions and latex chemicals. He will make his headquarters at the company's Boston office, 560 Atlantic Avenue, Boston, Mass.

JAMES H. COULLIETTE has accepted a position as head of the physics group in the Industrial Research Institute at the University of Chattanooga. Dr. Coulliette was formerly professor of physics at Birmingham Southern College and during the war was employed as physicist and spectrographer for the American Cast Iron Pipe Company, Birmingham, Alabama.

ALBERT MEVI, heretofore vice president and general manager of Enco Chemical Corp., has resigned his position to devote all of his time as president of Tartaric Raw Materials, Inc. Mr. Mevi has been attached, for a time, to the Foreign Economic Administration, both in Washington and overseas.

MELVIN GOLDBERG, for the last four years chief of the insecticides and fungicides unit of the chemical bureau of the War Production Board, has joined the Geigy Co., New York.

The Institute of Textile Technology has appointed BURT P. JOHNSON to its research staff as head of the biology division. Dr. Johnson was formerly with the Goodyear Tire and Rubber Company.

O. M. MCDONALD has been appointed to the sales staff of Philip E. Calo Company. Mr. McDonald was formerly associated with the American Paint Company before his enlistment in the Air Corps, as an Aerial Engineer and Gunner on B-25 Strafers and B-24 heavy Bombers.

The Pemco Corporation has announced the addition of R. WAYNE GATES to the research and development staff.

Pemco officials also have announced that JOHN STEENCKEN is now a part of their service organization.

GERALD P. NELSON has become manager of the Philadelphia Office of the J. T. Baker Chemical Co., Phillipsburg, N. J. Mr. Nelson started in the Philadelphia territory in 1938. In 1943 he was granted a leave of absence to assume duties as a Captain in the Army Transportation Service.

JOSEPH MANGION and JOSEPH L. UTTER have recently joined the staff of Arthur D. Little, Inc., Cambridge, Mass. Mr. Mangion, formerly laboratory director for the Alfred Hale Rubber Company, will take charge of the Arthur D. Little, Inc., rubber laboratory. Mr. Utter will be engaged primarily in work on ceramics. He was previously at the Massachusetts Institute of Technology, where he did war research on precision casting of turbine blades and on the atomic bomb.

CHEMICAL SPECIALTIES NEWS

New Firm to Make Carbon Black Dispersions

All types of carbon black dispersions for the printing ink, rubber, paint, carbon paper and plastics industries will be manufactured by Carbon Dispersions, Inc., a newly organized corporation with factory and laboratory at 27 Haynes Ave., Newark 5, N. J. These dispersions cut manufacturing costs and eliminate the dusty and dirty mixing operations encountered in the ordinary handling of carbon blacks.

Dr. Arthur Brauch, vice president and general manager in charge of plant operations and research for the new company, announces that in addition to the manufacture of commercially known dispersed carbon blacks, Carbon Dispersions, Inc. will make emulsified black, which is now being used extensively in the coloring of concrete roads and airport runways to eliminate glare, thus reducing traffic hazards. The company also has plans to develop new lines of special products not heretofore offered to industry.

Edelstein Heads Dexter Textile Division

Sidney M. Edelstein, formerly director of research for Hart Products Corp., has been named head of the recently formed textile chemical division of Dexter Chemical Corp., New York.

Sonneborn Names New Production Chief

L. Sonneborn Sons, Inc., has named Irving Silverman to the newly created post of production manager and appointed A. Moscowitz to succeed Mr. Silverman as chief chemist. Mr. Silverman has assumed responsibility for the direction of all production and shipping operations at the Nutley plant. Mr. Moscowitz will take charge of technical matters relating to all divisions at the Nutley laboratory, including the textile chemicals research activity in which he had formerly specialized. Co-ordination of technical and production details between the plant and Sonneborn's general offices in New York City will be handled by Erich Meyer, director of the department of industrial research.

General Atlas Carbon Elects Wright

Carl J. Wright, general manager, General Atlas Carbon Company, has been elected an officer of the corporation and will now serve as vice-president and general manager.

The General Atlas Properties, for which Mr. Wright was general manager and agent, was acquired from the previous owners April 1, 1945, by the General Atlas Carbon Company, a Massachusetts corporation in which Godfrey L. Cabot, Inc., Boston, holds controlling interest. Mr. Wright continued as general manager under the new corporation.

Since 1922, Mr. Wright, as a member of the staff of Henry L. Doherty & Company, Inc., had been in charge of the development of the General Atlas process for producing semi-reinforcing furnace blacks.

Stearns Names Boegly Divisional Vice-President

William J. Boegly has been appointed divisional vice-president in charge of plant operations according to J. Mark Hiebert, vice-president and general manager of the Frederick Stearns & Co. Division, Sterling Drug, Inc., Detroit, Mich.

Mr. Boegly became associated with Stearns as factory manager on July 1, 1943. Since then he has been directing an extensive plant modernization and renovating program for the Detroit plant and laboratories, which is now about half completed. Prior to joining Stearns, Mr. Boegly was for 23 years with John Wyeth & Brothers, Philadelphia.

Beach Joins McKesson & Robbins

Brewster S. Beach has been appointed manager of the newly established department of public relations, McKesson & Robbins, Inc. Resigning as a partner of Baldwin, Beach & Mermey in the spring of 1942, Beach was commissioned a lieutenant, senior grade, in the United States Naval Reserve and assigned to the office of press censorship. Prior to being returned to inactive duty last month, he served for a year in the Pacific area.

Landes Joins Prentiss

Karl H. Landes, discharged from the paratroops last July, has joined R. J. Prentiss & Co., Inc., where he will handle aromatic drugs and spices as manager of that department, with headquarters in the New York office of the company. Mr. Landes has had 18 years of experience in the botanical drug industry and has published several articles on spices and botanical chemistry.

D. C. A. T. Executive Committee Elected

At the 55th annual meeting and election of the Drug, Chemical and Allied Trades Section, the following executive committee was elected to serve for the next 12 months.

Harold M. Altshul, Ketchum & Co., Inc.
Carl M. Anderson, Merck & Co., Inc.
William H. Berg, The Borden Co.
Carle M. Bigelow, Calco Chemical Div., American Cyanamid Co.
Hugh C. Crosson, McKesson & Robbins, Inc.
James DeCesare, White Laboratories, Inc.
Frank G. Fanning, N. I. Malmstrom & Co.
William F. George, Hooker Electrochemical Co.
Harold C. Green, L. Sonneborn Sons, Inc.
Frank M. Head, Whelan Drug Co.
Philip B. Hofmann, Ortho Pharmaceutical Corp.
Joseph F. Kelly, Hagerty Bros. & Co.
Elvin H. Killheffer, E. I. duPont de Nemours & Co., Inc.
Robert B. Magnus, Mabee & Reynard, Inc.
James H. Murray, Parke, Davis & Co.
Charles A. Pennock, William R. Warner & Co.
Harold D. Pomeroy, G. S. Stoddard & Co., Inc.
John P. Remensnyder, Heyden Chemical Corp.
Fred J. Stock, Charles Pfizer & Co.
Lloyd I. Volckening, The Ivers-Lee Co.

E. T. T. Williams, Becton, Dickinson & Co., was elected as representative of the Section to the Board of Directors of the New York Board of Trade.

Chadeloid Appoints Mayers Research Chief

The assignment of John W. Mayers, formerly with Monsanto Chemical Company, to direct the research and develop-

ment program to be undertaken for the Chadeloid Corporation has been announced by E. L. Luaces, president of The Commonwealth Engineering Company of Dayton, Ohio.

Mr. Mayers will direct the laboratory program of Chadeloid as a service to licensees under the Chadeloid non-bleeding, non-grainraising, color-true wood stains patents.

The application research and development program of Chadeloid, according to Dr. Luaces, will be directed toward two objectives: providing technical data on applications for the woodworking industry, and broadening the base of the Chadeloid patent formulations.

Stauffer Buys American Cream of Tartar Co.

Stauffer Chemical Company, through its wholly-owned subsidiary, American Cream of Tartar Co., San Francisco, has purchased the Tartar Chemical Works, Brooklyn, a subsidiary of Standard Brands.

Operations at the new Stauffer unit will continue with the same personnel and management.

Mattson Chemical Co. Is Established

K. C. Mattson, formerly Los Angeles branch manager for The Griffin Chemical Co., has announced the formation of The Mattson Chemical Co.

The new firm will act as a West Coast agent for chemical manufacturers serving the petroleum, soap, detergent, pharmaceutical and food processing industries. Mattson Chemical Co., has offices at 124 West Fourth Street, Los Angeles 13, California.

Thompson Heads New Ferro Enamel Office

Ferro Enamel Corporation, Cleveland, Ohio, has announced the opening of a St. Louis office. The new office will serve as district headquarters and will be under the direction of J. A. Thompson.

Pittsburgh Plate Glass Constructs Paint Plant

The Pittsburgh Plate Glass Company has announced that construction is beginning on a new $1,750,000 paint plant at Springdale, near here. A complete line of paints, varnishes, enamels and synthetic resins will be manufactured to meet the current heavy demand and anticipated increased paint needs.

The plant is expected to be in operation by next August with more than 200 new employees, and will be the eighth factory of the company producing paints.

Patton Heads Warner Market Research

Wiley F. Patton has been named head of the statistical department of William R. Warner & Co., Inc. Mr. Patton was formerly employed by the War Food Administration and later as market research director for the Whitehall Pharmacal Co. Mr. Patton's department will be devoted to market research and statistical studies for William R. Warner & Co., Inc. and its subsidiary companies Schering & Glatz, Inc., Marcy Laboratories, Standard Laboratories, Inc., and Hudnut Sales Co.

ALBERT J. CAPALBO has joined the staff of Plasticote Company, Paterson, N. J., in the capacity of chief chemist in charge of production.

CANADIAN NEWS

by W. A. JORDAN

General Electric Forms Chemical Division

Canadian General Electric Co., Ltd., Toronto, one of Canada's pioneer resin producers, has announced the formation of a Chemical Division, with the appointment of A. E. Byrne as manager. Ac-

A. E. Byrne

cording to the company, the Division has developed as a result of C. G. E.'s extensive chemical research activities, and from the large wartime expansion which has taken place within its own chemical lines. However, present plans call for the company's entrance only into those chemical fields which by nature are closely related to the electrical industry, or which have been developed by G. E. research.

Among the current activities being undertaken by the new Division is the erection of a half million-dollar plant in Toronto as an extension to the existing unit in which Glyptal alkyd resins and solutions are manufactured for sale to the paint and varnish industry. The new plant, which is scheduled to come into full-scale production in March and which will double C. G. E.'s alkyd output, marks the third expansion of its resin facilities in the past ten years. The project includes the completion of a modern resins laboratory and foreshadows the manufacture of a wider range of alkyds of the newer types, based on pentaerythritol, fumaric acid, etc.

In addition, the Chemical Division is undertaking augmented output of Formvar, an abrasion and solvent-resistant wire enamel coating, prepared from Shawinigan's polyvinyl formal and further processed with phenolic resins by C. G. E., as well as handling molded and laminated plastics, varnished cambrics, tubings, and such adhesives as Glyptal cement. The Division will also distribute U. S.-produced silicones until such time as circumstances permit economical Canadian production.

At Peterboro, Ont., C. G. E. is modernizing its porcelain-producing facilities with the installation of a continuous tunnel kiln, but at present is not considering the manufacture of steatite insulators in view of the ample capacity of other domestic producers.

Sherwin-Williams to Make Resins in Canada

Sherwin-Williams Co. of Canada, Ltd., Montreal, has allocated $1.5 million for plant extensions and improvements during 1946, entailing modernization of plant and warehouse facilities in Montreal, Toronto, Winnipeg, and Vancouver.

A substantial part of the investment is to be devoted to the construction of a synthetic resin unit in Montreal to produce vehicles and finished varnishes, and the installation of new equipment for the manufacture of synthetic emulsion base finishes, such as Kemtone, which have not been made in Canada heretofore.

Another Montreal unit is to be completely remodeled and re-equipped to provide for the production of packaged insecticidal compounds, such as DDT, and some thirty other agricultural specialties, including the weedkiller, 2-4-D.

Ulcer Remedy

A novel, patented, pharmaceutical compound, said to hold considerable promise as a specific remedy for several types of peptic ulcers, has been placed on the market, for prescription dispensation, by Anglo Canadian Drug Co., Ltd., Oshawa, Ont., under the tradename Ulcaps.

Although numerous individual case histories were tabulated by the company during the research period, the main clinical report submitted was on a group of 80 workers in a Toronto war industry, diagnosed by X-ray as suffering from peptic ulcers. After treatment for one month with the new compound, with no restrictions on dietary, smoking, or drinking habits, 80 per cent were reported as ulcer-free, according to subsequent X-ray examination.

Main ingredients in the compound are: amino acids, organically combined balsamic acids and related esters, and chlorophyll in a cholesterol-bearing base.

Wood & Co. Markets Cationic Germicide

G. H. Wood and Co., Ltd., Toronto, major Canadian manufacturer and distributor of sanitation chemicals, is completing plans for the marketing of its recently developed cationic germicide under the brand name of R-2-L. The new product is claimed to be odorless, of low toxicity—approximately that of common salt—and capable of rapidly rendering surfaces bacteriostatic. It is also said to be more stable than chlorine, effective in the presence of organic material, and, in the case of textiles, resistant to several launderings.

Actually, the Wood program represents one of the first large scale promotions in Canada of a quaternary ammonium germicide, for the active ingredient in R-2-L is an alkyldimethylbenzylammonium chloride. At present this chloride is being imported from the U. S. A. for further processing in Toronto, but plans are underway for the manufacture of the chemical by Onyx Oil & Chemical Co., Ltd., Montreal, early this year.

Primary emphasis is to be placed by the Wood organization on sale of the cationic germicide to food packing plants and dairies, with the establishment of close coordination between consumer and the producer's bacteriological laboratories. Future plans call for the marketing of a number of other quaternary ammonium compounds as specifics for particular purposes—including hospital, laundry, and agricultural applications.

Canadian Industries Ltd. Expands Finishes Capacity

As part of a general expansion program, Canadian Industries, Ltd. (I. C. I.-du Pont) has announced plans for construction of a $1,400,000 finishes plant at Toronto, to supplement existing facilities, and a $275,000 addition to its paint and varnish works at Montreal. Work is already under way on a $4,000,000 extension to the company's nylon plant at Kingston, Ont., which will come into operation by July of this year.

Construction of the Toronto paint unit will begin early this spring, according to Manager B. F. Twining, with production to be devoted mainly to the manufacture of newer type synthetic resin finishes for automotive, industrial, and retail markets. The present Toronto plant will continue to operate as a producer of the more orthodox paints and varnishes, as well as lacquer type finishes such as Duco.

A feature of the planned Toronto facilities will be an expansion of the company's output of alkyd resins for its own consumption. Actually, C. I. L. has manufactured alkyds in Toronto, in steadily

increasing volume, since 1929; but the new unit is being designed to increase the tonnage and types of resins manufactured, in view of the consumer demand for resin-containing protective finishes, and in the light of the improved Canadian availability of some of the raw materials, including glycerine, vegetable oils, and phthalic anhydride.

Ault & Wiborg Increases Facilities

Ault and Wiborg Co. of Canada, Ltd., subsidiary of Interchemical Corp., New York, and largest Canadian manufacturer of printing and lithographing inks, has completed plans for the construction of a $400,000 Toronto plant.

The new unit will replace the plant of Aulcraft Paints, Ltd., subsidiary of Ault and Wiborg, and will provide additional facilities for the production of a complete line of paints, varnishes, and enamels, for industrial and retail sale, as well as all the base varnishes for Ault and Wiborg's Ink Division.

The vacated establishment will permit the expansion of the company's other subsidiary, Chemical Oil Processing, Ltd., founded five years ago for the segregation of vegetable oils.

Glycol Production Plans Studied

Serious consideration is being accorded to plans for the construction of a privately-financed plant in Western Canada's Turner Valley for the manufacture of ethylene glycol, according to official advice. A pilot plant is said to be already functioning, utilizing processes developed by the National Research Council and commercial operations are expected to be realized by the fall of this year.

In that Canada has been almost exclusively dependent on U. S. imports for anti-freeze glycol (7,250,000 lbs., 1944) the Council has engaged in a substantial amount of research work aimed at utilizing domestically available ethylene, during the past few years, and has made the basic information available to interested industrialists. One rather significant development was the issuance of a patent to the Council about a year ago, covering the vapor phase oxidation of ethylene to ethylene oxide by air in the presence of ethane or methane, employing a new type of controlled-surface-temperature silver catalyst.

This novel method made possible the "as is" use of readily available, low-ethylene content, hydrocarbon fractions—such as oil refinery absorber residue gases—without the costly isolation of the ethylene therefrom. Laboratory work on this process, and pilot plant design, was carried through successfully by the Council, in cooperation with a Montreal gasoline refinery, prior to the crystallization of the Turner Valley glycol plans.

Fertilizer Trade Declined During War

A marked decline occurred in foreign trade in fertilizer materials during the war period. Exports fell off more sharply than did imports; export tonnage declined one-half from the 1936-1938 level, compared with a drop of one-third in imports. There was an increase in the tonnage of materials imported in each of the years 1942, 1943 and 1944, while exports declined in each of those years, according to *The American Fertilizer*.

Exports

Export volume in the last two years fell to the lowest level reached since World War I. Since exports of phosphate rock, with a relatively low value per ton, have fallen off more than other materials, the total value of exports has not gone down as much as has volume.

Lend-lease exports accounted for an important part of the total fertilizer exports in 1941-1944. A substantial proportion of lend-lease exports consisted of concentrated superphosphate shipped to the United Kingdom. Smaller quantities of other materials have been sent under lend-lease to various parts of the world, helping to introduce United States fertilizers to these countries. This should help to stimulate future export trade.

Commercial fertilizer exports, on a dollar value basis, fell off somewhat more during the war than did our total commercial exports; the ratio of fertilizer exports to total exports dropped by nearly two-thirds from 1936 to 1942.

An important shift has taken place in the types of materials exported. Phosphate rock accounted for 77 per cent of total fertilizer exports in 1930-1934. By 1940-1944 the ratio was down to 60 per cent, and in 1943 it was only 45 per cent. Our 1943 phosphate rock production was the largest on record, but exports were the smallest in many years. We exported 6.7 per cent of our production that year, compared with 35 per cent in 1931-1935. Two of our most important prewar phosphate rock customers, Germany and Japan, were completely shut off by the war. The decline in phosphate rock exports was partially offset by increases in exports of other materials, especially potash and superphosphate.

Our 1939 fertilizer exports were valued at $17,141,000. Of that total, exports amounting to $10,757,000, or 63 per cent, went to countries later cut off by the war. Exports of $15,305,000 in 1944 compare with exports of $6,384,000 to the same countries in 1939. The largest increases have been in exports to Canada and the United Kingdom. It is doubtful if fertilizer will be shipped to these countries in the future at the same rate as during the war. Shipments to the United Kingdom were under lend-lease, which is now ended; the British have already announced plans for expanding their fertilizer industry. Latin America and the Orient are likely to prove the expanding markets in the future. UNRRA is currently distributing limited quantities of United

CHEMICALS: U. S. PRODUCTION, CONSUMPTION, AND STOCKS

First Quarter, April, May, June, Second Quarter, 1945

Item	*First Quarter*	*April 1945*	*May 1945*	*June 1945*	*Second Quarter*
Ammonium Sulphate[1] (Short Tons)					
Production	200,313	64,169	69,837	63,989	197,995
Consumption in producing plant	[5]	[5]	[5]	[5]	[5]
Stocks, end of period	34,481	28,860	21,789	24,671	24,671
Borax, Refined ($Na_2B_4O_7 \cdot 10HO$ content) (Short Tons)					
Production	53,540	17,812	19,212	17,893	54,917
Consumption in producing plant	[5]	[5]	[5]	[5]	[5]
Stocks, end of period	14,751	13,649	12,226	11,140	11,140
Cobalt, Compounds[2] (Pounds)					
Production	888,030	301,802	316,134	325,383	943,319
Consumption in producing plant	13,492	.....	2,268	2,190	4,458
Stocks, end of period	316,631	405,422	377,618	435,361	435,361
Cobalt, Driers[2] (Pounds)					
Production	1,943,261	738,667	761,494	831,430	2,331,591
Consumption in producing plant	35,242	9,309	4,707	6,118	20,134
Stocks, end of period	227,204	234,949	253,777	269,965	269,965
Copper Sulphate (25% Copper Content) (Short Tons)					
Production	31,311	10,461	11,586	10,180	32,227
Consumption	3,497	951	1,275	1,091	3,317
Stocks, end of period	8,163	5,404	4,921	3,702	3,702
Sulphur (Long Tons)					
Production	826,667	292,229	319,976	309,570	921,775
Consumption in producing plant	.....	.....	.....	.....	.....
Stocks[4], end of period	3,366,497	3,883,858	3,838,084	3,776,738	3,776,738
Zinc Oxide (Lead Free) (Short Tons)					
Production	34,814	11,892	12,096	12,650	36,638
Consumption, in producing plant	.....	.....	.....	.....	.....
Stocks, end of period	15,677	15,753	15,625	16,489	16,489
Zinc Oxide (Leaded) (Short Tons)					
Production	16,821	5,016	5,858	4,578	15,452
Consumption, in producing plant	.....	.....	.....	.....	.....
Stocks, end of period	2,632	2,859	2,670	2,576	2,576
Zinc Chloride (dry weight) (Short Tons)					
Production	4,878	1,821	1,964	2,110	5,895
Consumption, in producing plants	3,359	1,310	1,328	1,314	3,952
Stocks, end of period	1,565	1,562	1,622	1,611	1,611
Zinc Ammonium Chloride (dry weight) (Short Tons)					
Production	3,167	1,168	1,077	771	3,016
Consumption in producing plant	[5]	[5]	[5]	[5]	[5]
Stocks, end of period	607	776	663	721	721
Zinc Sulfate (dry weight) (Short Tons)					
Production	3,172	1,199	1,060	1,077	3,336
Consumption in producing plant	[5]	[5]	[5]	[5]	[5]
Stocks, end of period	571	649	447	487	487
Zinc Chemicals Misc.[6] (Short Tons)					
Production	985	157	297	305	759
Consumption in producing plant	[5]	[5]	[5]	[5]	[5]
Stocks, end of period	278	283	282	278	278

[1] Does not include synthetic ammonium sulfate the production of which is reported to the Bureau of the Census. Data for synthetic ammonium sulphate cannot be published.

[2] Includes oxide, hydrate and salts. Cobalt content of production:

	Pounds
1st Qtr., 1945	240,912
April, 1945	66,222
May, 1945	68,694
June, 1945	71,048
2nd Qtr., 1945	205,964

[3] Cobalt content of production:

	Pounds
1st Qtr., 1945	102,747
April, 1945	42,325
May, 1945	35,272
June, 1945	44,341
2nd Qtr., 1945	121,938

[4] Stocks at mine, in transit, or at warehouse.

[5] Non-publishable.

[6] Includes zinc carbonate, chromated zinc chloride, zinc cyanide, zinc peroxide, zinc sulfocarbolate, etc.

States fertilizer in Europe and is planning shipments to China. This should aid in developing an export market.

Imports

Imports of fertilizer materials have remained at a relatively high level, in spite of our greatly expanded domestic production. Import tonnage in 1944 was only 13 per cent below 1939, while the value of 1944 imports was the largest for any year since 1931 except 1937.

As a result of the development of a domestic potash industry and of the expansion of nitrogen production facilities, the United States has achieved a considerable degree of national self-sufficiency in regard to fertilizer. In 1925-1929, our imports were equivalent to one-third of our total fertilizer consumption; in the last three years the proportion averaged only 12 per cent.

Principal changes in the types of materials imported have been the practical disappearance of potash imports and an increase in sodium nitrate imports.

1945 Exports and Imports

Exports in the first seven months of this year were 95,000 tons under the corresponding period of 1944. Nitrogenous materials were exported in larger volume this year, but declines took place in other materials.

Imports this year have been above the level of the years immediately preceding the outbreak of the war, in spite of the practical elimination of potash imports.

NOTE: See table on page 144.

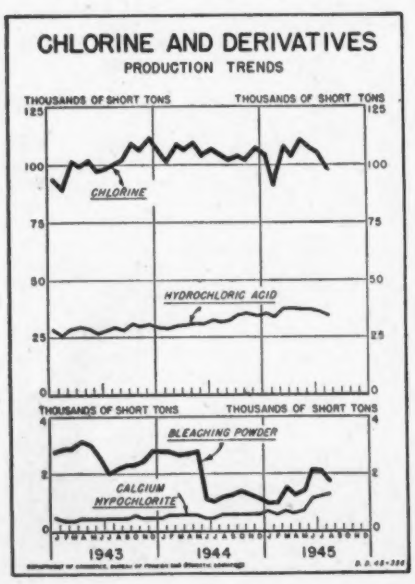
Iron Output Falls

Production of iron ore in the United States totaled 9,645,625 gross tons in October 1945—a decrease of 10 percent from September, according to the Bureau of Mines, United States Department of the Interior. Shipments of 10,280,386 tons were made from mines and mills in October compared with 11,226,008 tons in September and 10,886,736 tons in October 1944.

The Lake Superior district (Michigan, Minnesota, and Wisconsin) in approaching the end of the 1945 shipping season produced and shipped 8,552,907 tons and 9,203,656 tons respectively in October compared with 9,647,043 tons and 10,187,681 tons respectively in September. In October 1944, production from this district was 8,951,343 gross tons and shipments totaled 9,682,361 tons. Minnesota, the largest producing state, contributed 86 percent of the Lake Superior output and 76 percent of the United States total during October 1945. Sixty-one percent of producers' stocks were at mines in the Lake Superior district at the end of the month.

Production and shipments of ore containing (natural) 5 to 35 percent manganese, not included in the iron ore statistics amounted to 222,965 tons and 231,546 tons respectively during October; 98 percent of production and shipments (218,060 tons and 226,837 tons respectively) came from Minnesota. Small shipments were reported from Arkansas, Montana and New Mexico during October.

United States production of iron ore during the first 10 months of 1945 totaled



DETAILS OF PRODUCTION

(By naval stores crop years, beginning April 1 and ending March 31)

TABLE 1a—PRODUCTION OF TURPENTINE (Bbls. — 50 gals.)

	1945-46 6 mos. (Apr.-Sept.) Total	Gum	Wood	1944-45 6 mos. (Apr.-Sept.) Total	Gum	Wood
Gum	158,981	158,981	.....	159,312	159,312	.....
Wood						
Steam Dist.	61,602	.....	61,602	54,535	.....	54,535
Sulphate	57,955	.....	57,955	51,451	.....	51,451
Dest. Dist.	2,586	.....	2,586	4,141	.....	4,141
Total	281,124	158,981	122,143	269,439	159,312	110,127

TABLE 1b—PRODUCTION OF ROSIN (Drums 520 lbs. net)

Gum	426,505	426,505	.....	423,810	423,810	.....
Reclaimed Gum	4,550	4,550	.....	2,500	2,500	.....
Wood						
Steam Dist.	343,426	.....	343,426	302,426	.....	302,426
Sulphate	.....	.....	.....	.....	.....	.....
Dest. Dist.	.....	.....	.....	.....	.....	.....
Total	774,481	431,055	343,426	728,736	426,310	302,426

TABLE 1c—PRODUCTION OF BLACK LIQUOR SOAP AND TALL OIL

	1945-46 6 mos. (Apr.-Sept.)	1944-45 6 mos. (Apr.-Sept.)
Black Liquor Soap Reported as produced	103,691 tons	96,828 tons
Black Liquor Soap Reported as acidified	101,644 tons	72,580 tons
To produce according to reports Crude Tall Oil	49,591 tons	35,622 tons

TABLE 2—MISCELLANEOUS NAVAL STORES (Bbls.—50 gals.)

	1945-46 6 mos. (Apr.-Sept.) Production	1945 Sept. 30 Stocks	1944-45 6 mos. (Apr.-Sept.) Production	1944 Sept. 30 Stocks
Pine Oil	53,337	11,326	49,533	9,648
Pine Tar	43,377	4,806	43,964	1,227
Rosin Oil	10,457	2,548	11,856	2,291
Dipentene	9,567	4,024	8,859	2,312
Other Monocyclic Hydrocarbons	15,446	6,599	16,376	5,968

TABLE 3a—REPORTED CONSUMPTION OF TURPENTINE IN UNITED STATES

(Bbls.—50 gal.)

(By naval stores crop years, beginning April 1 and ending March 31)

	1945-46 6 mos. (Apr.-Sept.) Total	Gum[1]	Wood[1]	1944-45 6 mos. (Apr.-Sept.) Total	Gum[1]	Wood[1]
Abattoirs	0			0		
Adhesives & plastics	162			231		
Asphaltic products	0			0		
Automobiles & wagons	97			102		
Chemicals & pharmaceuticals	55,595			64,985		
Ester gum & synthetic resins	9,400			5,905		
Foundries & foundry supplies	318			315		
Furniture	75			84		
Insecticides & disinfectants	8			105		
Linoleum & floor covering	21			22		
Matches	0			0		
Oils & greases	63			103		
Paint, varnish & lacquer	8,656			11,548		
Paper & paper size	0			0		
Printing ink	103			179		
Railroads & shipyards	4,950			5,414		
Rubber	449			244		
Shoe polish & shoe materials	5,568			6,678		
Soap	0			0		
Other industries	76			116		
Total industrial reported	85,541	17,351	68,190	96,031	28,328	67,703
Not accounted for[2]	190,553	153,045	37,508	175,201	132,772	42,429
Apparent U. S. consumption[3]	276,094	170,396	105,698	271,232	161,100	110,132

[1] Separation of gum and wood turpentine consumption will be limited for the present to the total reported.

[2] Principally unreported distribution of turpentine through retailers who sell in small quantities to ultimate consumers.

[3] From Table 1a, page 1.

TABLE 3b—REPORTED CONSUMPTION OF ROSIN IN UNITED STATES

(Drums—520 lbs. net)

(By naval stores crop years, beginning April 1 and ending March 31)

	1945-46 6 mos. (Apr.-Sept.)			1944-45 6 mos. (Apr.-Sept.)		
	Total	Gum[1]	Wood[1]	Total	Gum[1]	Wood[1]
Abattoirs	211			425		
Adhesives & plastics	11,566			14,335		
Asphaltic products	1,463			1,864		
Automobiles & wagons	67			136		
Chemicals & pharmaceuticals	138,304			131,747		
Ester gum & synthetic rosins	131,758			111,515		
Foundries & foundry supplies	7,930			8,367		
Furniture	2			3		
Insecticides & disinfectants	3,035			3,924		
Linoleum & floor covering	4,349			10,804		
Matches	681			699		
Oils & greases	14,541			22,510		
Paint, varnish & lacquer	52,122			63,736		
Paper & paper size	133,233			188,654		
Printing ink	3,610			9,375		
Railroads & shipyards	8,813			11,502		
Rubber	12,881			8,662		
Shoe polish & shoe materials	2,995			3,508		
Soap	121,804			159,960		
Other industries	2,447			2,401		
Total industrial reported	651,812	361,986	289,826	754,127	453,736	300,391
Not accounted for[2]	−17,563	−11,933	−5,630	−34,964	−23,365	−11,599
Apparent U. S. consumption[3]	634,249	350,053	284,196	719,163	430,371	288,792

[1] Separation of gum and wood rosin consumption will be limited for the present to the total reported.

[2] This discrepancy between the total industrial consumption reported and the apparent U. S. consumption is, no doubt, due in large part to errors in individual reports amplified by the change from the former barrel of 500 lbs. gross weight to the present drum of 520 lbs. net weight. Another factor may be the failure on the part of some consumers to distinguish between rosin and modified or derived rosins in their reports with a resulting duplication of reported consumption.

[3] From Table 1b, page 2.

SYNTHETIC ORGANIC CHEMICALS: UNITED STATES PRODUCTION, CONSUMPTION, AND STOCKS

(In pounds, except that creosote oil is expressed in gallons.)

The data given in the following table supplement the figures released beginning March 1, 1944, in the Facts for Industry Series 6-2-1 to 6-2-20. Information concerning the limitations of the data, the completeness of coverage, and the selection of items were given in the Series 6-2-1 report.

In the table, production (except as noted in footnote 10) includes material produced whether consumed in the producing plants or sold. Consumption represents consumption at producing plants only; it includes material produced in such plants, or material purchased or transferred from other plants. Stocks are company stocks, as of the last day of the year or month, located at plant, in transit, or in warehouse, and include purchased as well as produced material.

	August 1945		
	Production	Consumption	Stocks
Acetanilide (technical and U. S. P.)	603,560	[4]	231,955
Acetic acid (synthetic)[1]	21,271,109	16,186,024	8,573,469
Acetic acid (natural, including that from calcium acetate)[2]	2,551,009	[4]	2,310,227
Acetic anhydride[3]	42,728,754	28,566,970	[4]
Acetylsalicylic acid (Aspirin)	814,794	[4]	1,113,309
n-Butyl acetate	6,444,972	[4]	3,774,675
Creosote oil, tar distillers[5]	9,296,172	562,847	5,801,398
Creosote oil, byproducts[6]	2,822,208	15,166	894,304
Cresols, meta-para[7]	912,578	[4]	354,037
Cresols, ortho-meta-para[7]	695,690	.....	61,546
Cresylic acid, crude	2,104,510	[4]	1,055,332
Cresylic acid, refined[7]	2,539,407	[4]	1,168,466
Diethyl ether (all grades)	5,439,336	[4]	2,964,669
Ethyl acetate (85 percent)	10,970,046	1,570,204	7,042,032
Lactic acid (edible)	Published quarterly		
Lactic acid (technical)	Published quarterly		
Methyl chloride (all grades)	2,383,609	[4]	662,484
Naphthalene, less than 79° C. (coke-oven operators)[8]	7,242,143	[4]	2,176,575
Naphthalene, less than 79° C. (tar distillers)[9]	17,730,597[10]	[4]	6,720,651
Naphthalene, refined (79° C. and over)	5,574,731	3,310,287	1,972,763
Oxalic acid (technical)	1,650,707	[4]	459,883
Phenabarbital and sodium salts	15,264	[4]	25,619
Phthalic anhydride	11,283,743	2,526,403	3,130,630
Riboflavin (for human use)	6,722	[4]	16,314
Sulfa drugs (total)[11]	459,565	[4]	549,569

[R] Revised.

[1] Excludes statistics on recovered acetic acid, which are confidential.

[2] Natural acetic acid (produced by direct process from wood) and acetic acid distilled from calcium acetate. These statistics are collected and compiled by the U. S. Bureau of the Census.

[3] Represents all acetic anhydride, including that produced from acetic by the vapor-phase process.

[4] Confidential; publication would disclose operations of individual companies.

[5] Product of distillers who use purchased coal tar only.

[6] Product of byproduct coke-oven operators only. These statistics are collected and compiled by the Coal Economics Division, U. S. Bureau of Mines.

[7] Statistics represent total production, consumption, and stocks, including both data reported by coke-oven operators to the Coal Economics Division, Bureau of Mines, and data reported by distillers of purchased coal tar to the U. S. Tariff Commission. Data reported to the two agencies are combined to prevent the disclosure of the operations of individual companies.

[8] Includes only the production, consumption and stocks of coke-oven operators. Statistics combine the three grades (solidifying at less than 74°C., at 74° C. to less than 76° C., and at 76° to less than 79° C.) in order to prevent the disclosure of the operations of individual companies. These statistics are collected and compiled by the Coal Economics Division, Bureau of Mines.

[9] Includes only the production, consumption and stocks of distillers of purchased coal tar. Statistics combine the grades specified in footnote 8, in order to prevent the disclosure of the operations of individual companies.

[10] For the grade solidifying at less than 74° C., these statistics represent production for sale only; for the other two grades, they represent production both for consumption within the producing plant and for sale. Production for consumption of the grade solidifying at less than 74° C. is excluded in order to minimize duplication as this grade is frequently converted to grades of higher melting point.

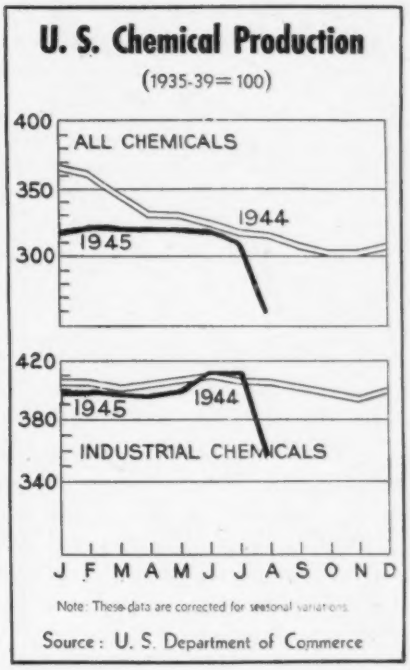
[11] Includes acetylsulfathiazole produced both as a sulfa drug and as an intermediate, resulting in an appreciable duplication which is unavoidable.

Source: Statistics collected and compiled by the U. S. Tariff Commission, except where otherwise noted.

(Refer all inquiries concerning these data to the United States Tariff Commission, Washington 25, D. C.)

82,667,135 tons compared with 88,310,756 tons during the same period of 1944. Shipments from mines and mills through October of this year amounted to 83,404,381 tons compared with 90,519,847 tons during the first 10 months of 1944.

Stocks of iron ore at mines totaled 3,989,900 tons at the end of October compared with 4,624,661 tons at the end of September.



Zinc Scrap Consumption Up

Consumption of zinc-base scrap metal, which had exhibited a declining trend for three months, increased 19 per cent in October, according to the Bureau of Mines, United States Department of the Interior. This consumption, 17,512 short tons, was higher than for any earlier month in 1945 except May and June; however, consumers' receipts of zinc scrap reached a record total of 20,741 tons, so that stocks increased from 30,564 tons at the end of September to 33,793 tons at the end of October. This would indicate that zinc scrap consumption will again be high for November. Secondary zinc recovery totaled 11,527 tons in October compared with 9,968 tons in the preceding month.

Consumption of chemical residues increased 53 per cent in October, following a drop of 23 per cent in the preceding month. Use of galvanizers' dross, the largest item, rose 18 per cent to 4,998 tons, the highest on record, and that of sal skimmings 35 per cent to 2,023 tons which is about normal for that material. Treatment of skimmings and ashes decreased 221 tons and that of rod and die-scrap 4 tons, but consumption of all other types of zinc scrap increased.

Receipts by consumers of every category of zinc scrap except galvanizers'

UNITED STATES EXPORTS AND IMPORTS OF FERTILIZERS AND FERTILIZER MATERIALS

By Calendar Years, in Short Tons

	1940	1941*	1942*	1943*	1944*
Exports					
Ammonium sulphate	168,955	94,770	27,490	78,005	10,615
Sodium nitrate	†	†	45,711	6,740	11,435
Other nitrogenous chemicals	112,020	67,256	4,378	8,961	11,690
Nitrogenous organic waste	7,543	6,257	5,913	5,586	5,916
Total Nitrogenous Materials	288,518	168,283	83,492	99,292	39,656
High grade hard rock	171,483	†	91,326	47,952	26,187
Land pebble rock	675,231	†	326,060	237,928	260,281
Other rock	†	†	174,780	115,322	205,509
Total Phosphate Rock	846,714	1,165,534	592,166	401,202	491,977
Superphosphate	158,244	164,500	184,903	268,552	205,922
Other phosphate materials	13,355	2,568	5,883	734	611
Total Phosphate Materials	1,018,313	1,332,602	782,952	670,488	698,510
Muriate of potash	†	†	36,456	81,613	86,933
Other potash	†	†	47,946	29,929	23,124
Total Potash Materials	93,060	91,950	84,402	111,542	110,057
Concentrated chem. fertilizers	28,637	9,360	5,314	3,369	1,259
Prepared fertilizer mixtures	8,144	23,440	7,370	3,606	27,406
Grand Total	1,436,672	1,625,635	963,530	888,297	876,888
Imports					
Ammonium sulphate	47,302	35,119	53,340	99,827	103,628
Ammonium nitrate mixtures	17,470	0	0	2,895	317
Calcium cyanamide	132,566	143,878	90,000	125,634	101,886
Calcium nitrate	1,542	0	0	0	5
Guano	879	17,241	3,503	9,622	4,889
Dried blood	13,031	18,779	4,105	5,071	17,664
Sodium nitrate	744,151	610,569	899,150	761,165	712,434
Ammonium phosphates	50,156	62,082	28,583	43,987	91,943
Tankage	14,044	15,361	2,536	16,611	12,536
Castor bean pomace	7,053	36	41	89	60
Fish scrap and meal	7,728	1,483	424	264	869
Other nitrogenous materials	48,214	63,446	13,529	63,873	114,711
Total Nitrogenous Materials	1,084,136	967,994	1,095,211	1,129,038	1,160,942
Bone phosphates	75,226	117,947	54,995	44,078	67,358
Normal superphosphate	8,166	13,459	6,681	282	1,357
Concentrated superphosphate	3,207	5,973	11,977	2,511	6
Ammoniated superphosphate	108	20	0	67	0
All other phosphates	6,850	4,861	4,217	52,089	138,224
Total Phosphate Materials	93,557	142,260	77,870	99,027	206,945
Muriate of potash	152,493	14,671	1,564	25,212	4,332
Potash-sodium nit. mixtures	55,016	34,541	14,272	19,767	9,407
Other potash materials	66,964	125	59	30	0
Total Potash Materials	274,473	49,337	15,895	45,009	13,739
Other fertilizers	42,633	54,658	52,246	72,378	67,813
Grand Total	1,494,799	1,214,249	1,241,222	1,345,452	1,449,439

* Export statistics include lend-lease exports.
† Not reported separately.

SUPERPHOSPHATE: PRODUCTION, RECEIPTS, DISPOSITION AND STOCKS, BY TYPE, AUGUST, 1945

In short tons (2000 pounds)

Item	Normal 18% APA	Concentrated 45% APA	Wet-base goods 18% APA
August 1945			
Stocks on hand, beginning of month	761,938	28,563	3,234
Production	638,528	21,617	2,819
Received from other acidulators (inc. exchange transfers)	15,219	....	....
Book adjustments (account of inventory	+2,854	+30	−192
Total supply	1,418,539	50,210	5,861
Disposition, total	603,734	24,006	1,004
Shipments, total	352,739	23,938	742
Used in reporting plants	250,995	68	262
Stocks on hand, end of month	814,805	26,204	4,857
July 1945			
Stocks on hand, beginning of month	730,062	28,602	2,372
Production	611,388	21,251	2,332
Received from other acidulators (inc. exchange transfers)	3,928	....	....
Book adjustments (account of inventory)	−15,005	−154	−46
Total supply	1,330,373	49,699	4,658
Disposition, total	[1]568,435	21,136	1,424
Shipments, total	319,662	20,977	1,285
Used in reporting plants	[1]248,773	159	139
Stocks on hand, end of month	[1]761,938	28,563	3,234
August 1944			
Stocks on hand, beginning of month	751,485	47,706	4,047
Production	552,295	18,644	2,582
Received from other acidulators (in. exchange transfers)	4,520	....	....
Book adjustments (account of inventory)	+4,543	....	+5
Total supply	1,312,843	66,350	6,634
Disposition, total	548,663	29,775	918
Shipments, total	294,351	29,611	585
Used in reporting plants	254,312	164	333
Stocks on hand, end of month	764,180	36,575	5,716

dross and chemical residues were greater than consumption. Those of die castings and die scrap, 2,374 tons and 1,424 tons respectively, were far higher than ever before, due chiefly to purchases by smelters in the middle and far west.

Recovery of secondary zinc increased in all metallic products, the greatest increase being 354 tons in redistilled slab to a total of 4,418 tons. There was a slight decrease in recovery of zinc from scrap in zinc sulphate and in miscellaneous products. The latter classification includes zinc recovered from scrap in other than zinc-base products such as brass and aluminum solder and destructive uses of zinc in chemical processes.

Barite Production High

The United States produced more barite in the first nine months of 1945 (521,623 short tons) than during the previous record year 1944 (515,136 short tons), according to preliminary compilations of the Bureau of Mines, United States Department of the Interior. Primary barite includes and is limited to ground barite produced at El Portal, Calif., and Malvern, Ark., and all crude, lump, and pebble barite except a small amount of hand-mined material not covered in the canvass.

Production was static in Georgia during the first nine months, but output in Missouri climbed fairly steadily owing to the increased number of new washers which have come into production this year. Arkansas also showed production gains for the first nine months of 1945 compared with the 1944 period. Among the new producers who began operations in the third quarter are Missouri Barite Co., 2305 Niels Esperson Bldg., Houston 2, Tex., washer in Camden County, Mo.; B. C. Wood, Sweetwater, Tenn., washer at Cedar Fork Community, Loudon County, Tenn.; and B. H. Schwartz, Barnard, N. C. Barium Products, Ltd., Newark, Calif., opened a deposit at Almanor, Calif., and California-Nevada Barytes Mines, 766 50th Ave., Oakland, Calif., reopened their deposit at Tonapah, Nev.

[1] Revised.

NOTE: August 1945 statistics are based on the reports of 162 plants, of which 159 manufacture normal superphosphate, eight manufacture concentrated superphosphate and seven manufacture wet-base goods. Three plants produce concentrated superphosphate exclusively, while 159 plants produce normal material only, or normal and concentrated or normal and wet-base goods.

These statistics include data for all plants, including government owned, known to have facilities for superphosphate manufacture. All quantities are expressed in equivalent short tons of the indicated A.P.A. (available phosphoric acid) percentage content. The statistics pertain only to superphosphate as such, and include no data for superphosphate in dry-base or dry-mixed goods. Figures for receipts of material, shipments, consumption and stocks relate only to plants which actually produce superphosphate. Cases in which book figures differ from actual physical inventory are covered under the heading "Book Adjustments," the amount of book excess being indicated by a minus sign (−) and the amount of book deficit by a plus sign (+). The use of this device makes possible a full accounting of all quantities of each type of superphosphate.

Prepared in the Industry Division by the Chemicals Unit.

MARKET OUTLOOK

Rubber Consumption Record Predicted

Metal Reserves Reveals Stocks

Rubber Chemicals Now Offered to Trade

Plastics Materials Shortage Relief Seen

Market Review

●

1946 Rubber Use To Set All-Time High

The year 1946 in the rubber industry will be largely devoted to catching up on long deferred and urgent demands for civilian products, according to John L. Collyer, president of the B. F. Goodrich Co. Meanwhile, the industry will be developing the postwar potentialities of new materials.

It is estimated that the United States will consume 900,000 tons of raw rubber in 1946—a new all-time high and approximately half again as much as the average consumption in the last few normal prewar years. Of this estimated 900,000 total, nearly two-thirds, or 600,000 tons, will be synthetic, since estimates indicate that we cannot expect to import more than 300,000 tons of natural rubber during the year.

During 1947, however, we should be very close to, or into, the period of out-and-out competition between natural and synthetic, although it is, of course, impossible to predict what the exact performance-price balance will be when that time is reached.

Although there has been much discussion of spectacular postwar products stemming from the lessons learned in synthetic rubber, it is not estimated that any of these will reach sufficient volume in 1946—mainly because equipment for manufacturing them is not available—to alter markedly the general pattern of the industry in terms of relative tonnages going into the various classes of products.

However, toward the end of the year —and surely in 1947—several classes of products whose potentialities were brought forth during the war will come into increasing production and use. Among these are rubber spring suspensions, foamed latex, various types of vibration dampeners and sound insulators, and rubber used in protective films and coatings, and in combination with non-rubber plastics of several types.

OMR to Release Needed Minerals

Officials of the Office of Metal Reserves, a subsidiary of the Reconstruction Finance Corporation, have disclosed the stocks of strategic metals and minerals held by the government and have assured industry that they would call upon those reserves to meet deficiencies which may develop during reconversion.

The disclosure was coupled with a warning that serious shortages of some materials require indefinite continuation of restrictions—particularly on lead, tin, and antimony. Other materials in short supply are cadmium, corundum, and certain grades of mica and graphite.

The supplies of a great many materials, however, are adequate for industrial needs. Among these are refractory chrome, cobalt, industrial diamonds, fluorspar, magnesium, mercury, molybdenum, tungsten, vanadium, aluminum, and columbium.

The tabulation of stocks is as follows:

Material	*Unit*	(*)
Antimony—Metal	S. T.	2,089
Oxide		66
Ore		8,157
Beryl ore	S. T.	4,768
Cadmium	Lbs.	1,225,971
Chromite—metallurgical	L. Dry T.	
High grade Russian		236,297
Other, including medium and low grade		159,875
Low grade domestic		111,861
Chromite—refractory	L. Dry T.	236,855
Chromite—chemical	L. Dry T.	51,596
Cobalt	Lbs.	3,295,421
Copper—refined	S. T.	498,406
Diamonds	Carats	3,529,883
Fluorspar — Metallurgical	S. T.	177,557
Fluorspar—acid	S. T.	22,007
Graphite—Madagascar	M. T.	
Flake		558
Fines		1,658
Graphite—Ceylon	L. T.	
Plus 95%		207
90-95%		54
Lead—Primary refined	S. T.	86,242
Magnesium—Ingot	Lbs.	†2,215,562
Manganese—metallurgical	L. Dry T.	939,543
Battery		.....
Chemical		.....
Mercury	Flasks	63,638
Mica	Lbs.	
Phlogopite		553,390
Splittings		241,251
Block		.....
Muscovite—		
Splittings—Loose		3,137,724
Bookpacked		470,897
Block and film—		
GM and better		3,090,342
Std. and lower		3,531,193
Molybdenum	Lbs.	4,746,202
Nickel	Lbs.	35,620,421
Platinum	Tr. oz.	55,166
Quartz crystals	Lbs.	993,019
Tantalite (TA205)	Lbs.	420,861
Tin—pig	L. T.	21,163
Tungsten	Lbs.	22,012,743
Vanadium	Lbs.	1,805,568
Slab zinc	S. T.	
Grade A		167,437
Grade B		79,884
Aluminum—Ingot	Lbs.	
Primary		385,140,355
Secondary		6,223,108
Asbestos	S. T.	
G & C 1		64
C & G 2		716
C & G 3		6,809
C & G 4		5,499
B1, etc.		1,411
M 1		3,015
Misc.		736
Barite	S. T.	.....
Bauxite	L. Dry T.	2,712,688
Bismuth	Lbs.	782,514
Celestite	S. T.	9,210
Columbium	Lbs.	33,991
Corundum—grain basis	L. T.	1,443
Cryolite — refined equivalent	S. T.	25,512
Indian kyanite	S. T.	3,515
Monazite	S. T.	.....
Iridium	Tr. oz.	3,147
Osmium	Tr. oz.	185
Rhodium	Tr. oz.	161
Rutile	S. T.	3,569
Talc—steatite	S. T.	6,541

Market Review

Heavy Chemicals.—The tie-up in the automotive industry has made its effect felt upon the heavy chemicals demand; the movement of chemicals towards those centers has slowed considerably.

Caustic soda is still very tight, but caustic potash is much more available than previously. Carbon tetrachloride, too, is in ample supply, as is acetic acid and saltpeter. Other scarce items besides caustic soda are potassium permanganate, oxalic acid, bichromates, soda ash, and sodium phosphates.

The price of cresylic acid, about 40 per cent of which is imported, was boosted last month by British producers. Toluene is almost a drug on the market at present, but present stocks will come in handy if the threatened steel strike develops. Supplies of benzene will be curtailed by a strike, and xylene will be hit the hardest of all.

Sulfuric acid is in adequate supply, as are most of the mineral acids. A shortage of carboys is said to be holding up movement of nitric, hydrochloric, and formic acids. Borax and calcium chloride are scarce.

Fine Chemicals.—Important news of the preceding month was reduction in price of the ethylamines: the mono-, di-, and triethylamine were reduced to 15c, 40c, and 30c per pound, respectively, in tank-car quantities. Another substantial price reduction was announced for 2-ethylhexoic acid.

Slackening of demand from the protective coatings industry has eased the withdrawal of glycerin stocks.

Competition early last year forced penicillin prices to a level incompatible with manufacturing costs. An upward revision is expected. Saccharin, coumarin, and sodium perborate are scarce.

Indications point to an upward trend in mercury prices, and consequently a reduction in prices of mercurials is no longer expected.

Block (usable)	S. T.	‡120
Baddeleyite	S. T.	15,829
Zircon	S. T.	2,581
Other materials — not on strategic lists—		
Amblygonite	S. T.	.....
Arsenic (AS203)	S. T.	4,225
Electrolytic manganese	Lbs.	400,000
Optical calcite (1 & 2)	Lbs.	520
Silver	Tr. oz.	7,446,209
Spodumene	S. T.	1,571

* Government stocks held in United States and Canada by RFC through Office of Metals Reserve as of Oct. 31, 1945.
† Secondary.
‡ Estimate.

Goodrich Opens General Sale of Rubber Chemicals

A number of chemicals formerly sold only to the rubber industry by the B. F. Goodrich Chemical Co. has been released to the general trade. Among those available in commercial quantities are the following: phenyl-β-naphthylamine, mixed mono- and diheptyldiphenylamines, isopropoxydiphenylamine, *p*-hydroxydiphenylamine, N-nitrosodiphenylamine, diphenyl-*p*-phenylenediamine, di-β-naphthyl-*p*-phenylenediamine, hydroquinone monobenzyl ether, diisopropyl dixanthogen, mixed ethyl and dimethyl mercaptothiazoles, and mixed aliphatic thiazyl disulfides.

Hydroquinone dibenzyl ether is available in pilot-plant quantities.

Plastic Materials Will Be Available

A survey made by the Plastic Materials Manufacturers Association reveals that, although the demand for plastic materials, with but few exceptions, greatly exceeds the supply at the present time, it is indicated that some measure of relief will become effective during the first quarter of 1946 and will continue thereafter, with substantial increases in availability late in the year.

Supplies of cellulosics, acrylics, phenolics, ureas, and the vinyl resins will increase substantially, as will tonnages of polyethylene, polystyrene, the new cellulosics, and nylon.

Thermoplastic molding materials, the survey shows, which have been particularly short, will increase 33 per cent during the first quarter of 1946 and 150 per cent by the second quarter of 1947. Expansion plans for polystyrene facilities may permit a 600 per cent increase over present operations, and release of synthetic rubber styrene plants will boost that figure even higher.

Manufacturers of phenolic molding powders are severely hampered by lack of wood flour. Tar acid supplies will be further curtailed if the threatened strike in the steel industry develops, slowing down coking ovens.

Other shortages exist in cellulose acetate flake, cotton waste, and coloring pigments for styrene molding materials.

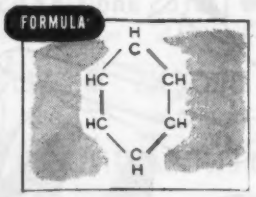
BENZOL

DEFINITION: Benzol (Benzene) is the parent hydrocarbon of the aromatic compounds. It is the basic raw material for the synthesis of many organic chemicals.

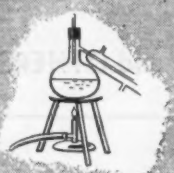
HISTORY: Discovered in 1825 by Faraday in an oil obtained by compressing illuminating gas. Hofmann found it in coal-tar in 1845. The process of recovering benzol industrially was first developed by Charles Mansfield.

FORMULA:

C_6H_6



SOURCES: Benzol is obtained principally from the destructive distillation of coal. Most of the benzol produced in this operation is recovered by scrubbing coke-oven gas, while the balance is found in the portion of coal-tar that distills below 170°C.



CHARACTERISTICS: The pure product is a mobile, colorless liquid. It boils at 80.1°C., and crystallizes at 5.5°C. It is practically insoluble in water but mixes readily with ether, anhydrous alcohol, petroleum distillates and many organic liquids.

USES: A solvent for stains, coatings, and rubber cements; an essential raw material for the manufacture of dyes, tetryl and other explosives, synthetic rubber, phenol, aviation fuel, and D. D. T.

GRADES:

	Sp. Gr.	Boiling Range
Benzol, Nitration Pure	.882-.886	1°C max. incl. 80.1°C
Benzol, Industrial Pure	.875-.886	2°C max. incl. 80.1°C
Benzol, 90%	.870-.886	Start: Min. 78.2°C., 90% min. at 100°C
Thiophene-free Benzol	.882-.886	1°C max. incl. 80.1°C

This is one of a series of advertisements presenting information on basic coal-tar chemicals.

Awarded to the men and women of the Barrett Frankford Chemicals plant for excellence in the production of war materials.

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.
The Barrett Company, Ltd., 5551 St. Hubert St., Montreal, Que.

ONE OF AMERICA'S GREAT BASIC BUSINESSES

CURRENT PRICES

Chemical prices quoted are of American manufacturers for spot New York, immediate shipment, unless otherwise specified. Products sold f.o.b. works are specified as such. Import chemicals are so designated.

Oils are quoted spot New York, ex-dock. Quotations f.o.b. mills, or for spot goods at the Pacific Coast are so designated.

Raw materials are quoted New York, f.o.b., or ex-dock. Materials sold f.o.b. works or delivered are so designated.

The current range is not "bid and asked," but are prices from different sellers, based on varying grades or quantities or both.

Purchasing Power of the Dollar: 1926 Average—$1.00
December, 1943, $0.910 December, 1944, $0.890
December, 1945, $0.858

		Current		1944		1943	
		Low	High	Low	High	Low	High
Acetaldehyde, 99%, drs. wks.	lb.	.11	.14	.11	.14	.11	.14
Acetic Anhydride, drs,	lb.	.11½	.13	.11½	.13	.11½	.13
Acetone, tks, delv.	lb.	.06	.07	...	.07	...	.07
ACIDS							
Acetic, 28%, bbls	100 lbs.	3.38	3.63	3.38	3.63	3.38	3.63
glacial, bbls.	100 lbs.	9.15	9.40	9.15	9.40	9.15	9.40
tks, wks.	100 lbs.	6.93	7.25	6.93	7.25	...	6.93
Acetylsalicylic, Standard USP	lb.	.40	.54	.40	.54	.40	.54
Benzoic, tech. bbls.	lb.	.43	.47	.39	.47	.39	.47
USP, bbls, 4,000 lbs. up	lb.	...	.54	...	.54	...	.54
Boric tech, bbls, c-l.	tons *a*	...	109.00	...	109.00	...	109.00
Chlorosulfonic, drs, wks.	lb.	.03	.04½	.03	.04½	.03	.04½
Citric, USP, crys, gran, bbls.	lb. *b*	.20	.21	.20	.21	.20	.24
Cresylic 50%, 210-215° HB, drs. wks. frt. equal	gal.	.81	.83	.81	.83	.81	.83
Formic, 85%-90% cbys.	lb.	.10	.11½	.10	.11½	.10½	.11½
Hydrofluoric, 30% rubber, dms.	lbs.	.08	.09	.08	.09	.08	.09
Lactic, 22%, lgt, bbls wks	lb.	.039	.0415	.039	.0415	.039	.0415
44%, light, bbls wks	lb.	.073	.0755	.073	.0755	.073	.0755
Maleic, Anhydride, drs	lb.	.25	.26	.25	.26	.25	.26
Muriatic, 18° cbys	100 lb.	1.50	2.45	1.50	2.45	1.50	2.45
20° cbys, c-l, wks.	100 lb.	...	1.75	...	1.75	...	1.75
22° cbys, c-l, wks	100 lb.	...	2.25	...	2.25	...	2.25
Nitric, 36°, cbys, wks 100 lbs. *c*		5.00	5.25	5.00	5.25	5.00	5.25
38°, c-l, cbys, wks 100 lbs. *c*		...	5.50	...	5.50	...	5.50
40°, c-l, cbys, wks 100 lbs. *c*		...	6.00	...	6.00	...	6.00
42°, c-l, cbys, wks 100 lbs. *c*		...	6.50	...	6.50	...	6.50
Oxalic, bbls, wks	lb.	.11¼	.12½	.11¼	.12½	.11¼	.12½
Phosphoric, 100 lb. cbys, USP	lb.	.10½	.13	.10½	.13	.10½	.13
Salicylic, tech, bbls	lb.	.26	.42	.26	.42	.26	.44
Sulfuric, 60°, tks, wks	ton	...	13.00	...	13.00	...	13.00
66°, tks, wks	ton	...	16.50	...	16.50	...	16.50
Fuming 20% tks, wks.	ton	...	19.50	...	19.50	...	19.50
Tartaric, USP, bbls	lb.	.70½	.71	.70½	.71	...	.70½
Alcohol, Amyl (from Pentane) tks, delv	lb.	...	.131	...	.131	...	.141
Butyl, normal, syn, tks	lb.	...	.10¾	...	.10¾	.10¾	.14¼
Denatured, CD 14, c-l drs	gal. *d*	...	.613	...	.57	...	.54½
Denatured, SD, No. 1, tks.	*d*	...	.542	...	.50	...	.50
Ethyl, 190 proof tks.	gal.	...	17.65½	...	17.60	...	11.90
Isobutyl, ref'd, drs	lb.	...	.086	...	.086	...	.086
Isopropyl ref'd, 91%, dms	gal.	.38	.41	.37½	.66½	.39	.66½
Alum, ammonia, lump, bbls, wks	100 lb.	...	4.25	...	4.25	...	4.25
Aluminum, 98-99%	100 lb.	15.00	16.00	15.00	16.00	15.00	16.00
Chloride anhyd l.c.l. wks	lb.	.09	.12	.08	.12	.08	.12
Hydrate, light, bgs.	lb.	...	.14½	...	.14½	.14½	.15
Sulfate, com'l. bgs, wks, c-l	100 lb.	1.15	1.25	1.15	1.25	1.15	1.25
Sulfate, iron-free, bgs, wks	100 lb.	1.75	2.00	1.85	2.50	1.75	2.50
Ammonia anhyd, cyl	lb.	...	.14½	...	.14½	...	.16
Ammonium Carbonate, USP, lumps, dms	lb.	.08¼	.09¼	.08½	.09¼	.08¼	.09¼
Chloride, whi, bbls, wks,	100 lb.	4.45	5.15	4.45	5.15	4.45	5.15
Nitrate, tech. bags, wks.	lb.	.0435	.0450	.0435	.0850	.0435	.0850
Oxalate pure, grn. bbls.	lb.	...	.23	.27	.33	.27	.33
Perchlorate, kgs	lb.	No stocks		.55	.65	.55	.65
Phosphate, dibasic tech. bgs	lb.	.07	.07¾	.07	.07¾	.07¼	.08½
Stearate, anhyd. dms.	lb.	...	.34	...	.34	...	.34
Sulfate, dms, bulk	ton	28.20	29.20	28.20	29.20	28.20	30.00
Amyl Acetate (from pentane) tks., delv	lb.	...	.14½	...	.14½	...	.14½
Aniline Oil, drs	lb.	.11½	.12½	.11½	.12½	.11½	.12½
Anthraquinone, sub, bbls.	lb.	...	.70	...	.70	...	.70
Antimony Oxide, bgs	lb.	.15	.16	.15	.15½	.15	.15½
Arsenic, whi, kgs—powd.	lb.	.04	.04¾	.04	.04¾	.04	.04¾

USP $25 higher; Prices are f.o.b. N. Y., Chicago, St. Louis, deliveries ½c higher than NYC prices; *y* Price given is per gal; *c* Yellow grades 25c per 100 lbs less in each case; *d* Prices given are Eastern schedule, *a* Powdered boric acid $5 a ton higher; *b* Powdered citric acid is ½c higher.

Current Prices

Barium Gums

		Current Low	Current High	1944 Low	1944 High	1943 Low	1943 High
Barium Carbonate precip, wks, bgs.	ton	60.00	75.00	55.00	75.00	55.00	65.00
Chloride, tech, cyst, bgs, zone 1	ton	73.00	78.00	73.00	90.00	77.00	90.00
Barytes, floated, bbls.	ton	...	36.00	...	36.00	...	36.00
Bauxite, bulk mines	ton	7.00	10.00	7.00	10.00	7.00	10.00
Benzaldehyde,tech,cbys,dms	lb.	.45	.55	.45	.55	.45	.55
Benzene (Benzol), 90%, tks, ft all'd	gal.	...	.15	...	.15	...	.15
Benzyl Chloride, cbys	lb.	.22	.24	.22	.28	.22	.25
Beta-Naphthol, tech, bbls, wks	ton	.23	.24	.23	.24	.23	.24
Bismuth metal, ton lots	lb.	...	1.25	...	1.25	...	1.25
Blanc Fixe, 66⅔% Pulp, bbls, wks	ton h	40.00	46.50	40.00	46.50	40.00	46.50
Bleaching Powder, wks,100 lb.		2.50	3.60	2.50	3.60	2.50	3.60
Borax, tech, c-l, bgs	ton i	...	45.00	...	45.00	...	45.00
Bordeaux Mixture, drs	lb.	.11	.11½	.11	.11½	.11	.11½
Bromine, cases	lb.	.21	.23	.21	.30	.25	.30
Butyl, acetate, norm. drs.	lb.	.1860	.1910	.1755	.1945	.1575	.1840
Cadmium Metal	lb.	.90	.95	.90	.95	.90	.95
Calcium, Acetate, bgs, 100 lb.		3.00	4.00	3.00	4.00	3.00	4.00
Carbide, drs	ton	50.00	90.00	50.00	95.00	50.00	95.00
Carbonate, c-l bgs	ton	18.00	22.00	18.00	22.00	18.00	22.00
Chloride, flake, bgs c-l	ton	18.50	35.00	18.50	35.00	18.50	35.00
Solid, 73-75% drs, c-l,	ton	18.00	34.50	18.00	34.50	18.00	31.50
Gluconate, U.S.P., drs.	lb.	.57	.59	.57	.59	.57	.58
Phosphate, tri, bbls, cl.	lb.	...	.0635	.0635	.0785	.0635	.0785
Camphor, U.S.P., gran, powd, bbls	lb.	.69	.71	.68½	.71	.68½	.70½
Carbon Bisulfide, 55-gal drs	lb.	.05	.05¼	.05	.05¼	.05	.05¼
Dioxide, cyl	lb.	.06	.08	.06	.08	.06	.08
Tetrachloride, Zone 1, 52½ gal. drms	lb.	.73	.80	.73	.80	.73	.80
Casein, Acid Precip, bgs, 100 or more	lb.	.24	.24¼	...	.24	.	.24
Chlorine, cyls, lcl, wks, contract	lb.	...	.07¼	...	.07¼	...	.07¼
cyls, c-l, contract	lb. y	...	.05¼	...	.05¼	...	.05¼
Liq, tk, wks, contract 100 lb.		...	1.75	...	1.75	...	1.75
Chloroform, tech, drs	lb.	.20	.23	.20	.23	.20	.23
Coal tar, bbls, crude	bbl.	8.25	8.75	8.25	8.75	8.25	8.75
Cobalt, Acetate, bbl	lb.	...	.83¾	...	.83¾	...	.83¾
Oxide, black kgs	lb.	...	1.84	...	1.84	...	1.84
Copper, metal	100 lb.	12.00	12.50	12.00	12.50	12.00	12.50
Carbonate, 52-54%, bbls.	lb.	.19½	.20½	.19½	.20½	.19½	.20½
Sulfate, bgs, wks cryst.	100 lb.	5.00	5.50	5.00	5.50	5.00	5.50
Copperas, bulk, c-l, wks	ton	...	14.00	...	14.00	...	14.00
Cresol, USP, drs	lb.	.10¾	.11¾	.10¾	.11¾	.10¾	.11¾
Cyanamid, bgs	ton	1.52½	1.62½	1.52½	1.62½	1.52½	1.62½
Dibutylamine, c-l, drs, wks,		...	.66	...	.66	...	.66
Dibutylphthalate, drs	lb.	.1770	.2359	.1780	.2659	.2060	.2300
Diethylaniline, lb drs	lb.	...	.40	...	.40	...	.40
Diethyleneglycol, drs, wks	lb.	.14	.15	.14	.15½	.14	.15½
Dimethylaniline, dms,cl.,lcl	lb.	.21	.22	.21	.24	.23	.24
Dimethyl phthalate, drs	lb.	.1875	.1925	.1875	.1925	.1875	.2050
Dinitrobenzene, bbls	lb.	...	.18	...	.18	...	.18
Dinitrochlorobenzene, dms.	lb.	...	.14	...	.14	...	.14
Dinitrophenol, bbls	lb.	...	.22	...	.22	...	.22
Dinitrotoluene, dms	lb.	...	.18	...	.18	...	.18
Diphenyl, bbls lcl. wks.	lb.	.16	.20	.16	.20	.15	.20
Diphenylamine bbls	lb.	...	.25	...	.25	...	.25
Diphenylguanidine, drs.	lb.	.35	.37	...	.35	.35	.37
Ethyl Acetate, tks, frt all'd	lb.	.0975	.1175	.1070	.1175	.107	.110
Chloride, drs	lb.	.18	.20	.18	.20	.18	.20
Ethylene Dichloride, lcl. wks, E. Rockies, dms	lb.	.0842	.0941	.0842	.0941	...	.0842
Glycol, dms, cl.	lb.	...	.10	...	.10	...	.10
Fluorspar, No. 1, grd.95-98% bulk, cl-mines	ton	...	37.00	...	37.00	...	37.00
Formaldehyde, bbls, cl & lcl	lb.	.0520	.0570	.0520	.0570	.0550	.0575
Furfural tech, dms, c-l,wks	lb.	...	.13	...	.13	...	.12½
Fusel Oil, ref'd, dms, dlvd	lb.	.18½	.19½	.18½	.19½	.18½	.19½
Glauber's Salt, Cryst, c-l, bgs, bbls, wks	100 lb.	1.05	1.45	1.05	1.25	1.05	1.25
Glycerin dynamite, dms, c-l,	lb.	...	.17½	...	.14½	...	.18¾
Crude Saponification, 80% to refiners tks	lbs.	...	.11½	.09½	.10	...	.12¾

GUMS

Gum Arabic, amber sorts bgs	lb.	.11½	.12	.11¾	.14	.13½	.17½
Benzoin Sumatra, CS	lb.	.52	1.00	.52	1.00	.52	1.00
Copal, Congo	lb.	...	.55¾	...	.55¾	...	.55¾
Copal, East India, chips	lb.	...	.53¾	...	...	...	...
Macassar dust	lb.	...	.07½	...	.07½	.07½	.11¾
Copal Manila,		.13½	.15½	.13½	.15½	.13½	.15½
Copal Pontianak, bold c-l	lb.	...	.23⅜	...	.23⅜	...	.23⅜
Karaya, bbls, bxs, dms.	lb.	.18	.46	.15	.46	.14	.40

ABBREVIATIONS—Anhydrous, anhyd; bags, bgs; barrels, bbls; carboys, cbys; carlots, c-l; less-than-carlots, lcl; drums, drs; kegs, kgs; powdered, powd; rened, ref'd; tanks, tks; works, f.o.b., wks.

y Price given is per gal.

Current Prices

Gums
Salt Cake

		Current Low	Current High	1944 Low	1944 High	1943 Low	1943 High
Kauri, N. Y.							
Superior Pale XXX	lb.	...	.65¾	...	.65¾	...	.65¾
No. 3	lb.	...	.22	...	.23	...	.22
Sandarac, cs	lb.	...	.99½	...	.99½	1.40	nom.
Tragacanth, No. 1, cases	lb.	3.80	3.90	4.00	5.25	4.00	5.25
No. 3	lb.	2.15	2.60	1.10	3.50	1.10	1.20
Yacca, bgs	lb.	.06	.07¼	.06	.07¼	.06	.07¼
Hydrogen Peroxide, cbys	lb.	.15½	.18½	.15½	.18½	.15½	.18½
Iodine, Resublimed, jars	lb.	1.75	1.85	2.00	2.10	2.00	2.10
Lead Acetate, cryst, bbls	lb.	...	.12½	...	.12½	...	.12½
Arsenate basic, bg, lcl	lb.	.12	.12½	.11½	.12	.11½	.12
Nitrate, bbls	lb.	...	.12½	...	.12½	...	.12
Red, dry, 95% Pb_3O_4 bbls	lb.	.09	.10¾	.09	.11	.09	.11
97% Pb_3O_4, bbls delv	lb.	.09½	.11	.09¾	.11	.09¾	.11
98% Pb_3O_4, bbls delv	lb	.09½	.11¼	.09½	.11¼	.09½	.11¼
White, bbls	lb.	.08¾	.08¾	.08¼	.08¾	.08¼	.08¾
Basic sulfate, bbls, lcl	lb.	.07¼	.08	.07¼	.08	.07¼	.08
Lime, Chem., wks, bulk	ton	6.50	9.25	6.25	13.00	6.25	13.00
Hydrated, f.o.b. wks	ton	8.50	.12	8.50	16.00	8.50	16.00
Litharge, coml, delv. bbls	lb.	.08	.09¾	.08	.09¾	.08	.09¾
Lithopone, ordi., bgs	lb.	.04¼	.04½	.04½	.04¾	.04¼	.04¾
Magnesium Carb, tech, wks	lb.	.07¼	.10¾	.06¼	.09¾	.06¼	.09¼
Chloride flake, bbls, wks c-l	ton	...	32.00	...	32.00	...	32.00
Manganese, Chloride, Anhyd. bbls	lb.	.15	.18	.15	.18	.14	nom.
Dioxide, Caucasian bgs, lcl	ton	74.75	79.75	...	74.75	...	74.75
Methanol, pure, nat, drs gal	*l*	.63	.73	.63	.76	.63	.76
Synth, drs cl	gal. *m*	.31	.38	.31	.40½	.34½	.40½
Methyl Acetate, tech tks	lb.	.06	.07	.06	.07	.06	.07
C.P. 97-99%, tks, delv	lb.	.09½	.10½	.09½	.10½	.09½	.10½
Chloride, cyl	lb.	.32	.40	.32	.40	.31	.40
Ethyl Ketone,tks,frt all'd	lb.	...	.08	...	.08	...	.08
Naphtha, Solvent, tks	gal.	...	.27	...	.27	...	.27
Naphthalene, crude, 74°, wks tks	lb.	...	.0275	...	.0275	...	.0275
Nickel Salt, bbls, NY	lb.	.13	.13½	.13	.13½	.13	.13½
Nitre Cake, blk	ton	...	16.00	...	16.00	...	16.00
Nitrobenzene, drs, wks	lb.	.08	.09	.08	.09	.08	.09
Orthoanisidine, bbls	lb.	...	.70	...	.70	...	.70
Orthochlorophenol, drs	lb.	.25	.27	.25	.32	...	.32
Orthodichlorobenzene, drms	lb.	.07	.08	.07	.08	.07	.08
Orthonitrochlorobenzene, wks	lb.	.15	.18	.15	.18	.15	.18
Orthonitrotoluene, wks,dms	lb.	...	.09	...	.09	...	.09
Paraldehyde, 98%, wks lcl	lb.	...	.12	...	.12	...	.12
Chlorophenol, drs	lb.	.26½	.28	.25	.32	...	.32
Dichlorobenzene, wks	lb.	.11	.15	.11	.15	.11	.15
Formaldehyde, drs, wks	lb.	.21	.22	.23	.24	.23	.24
Nitroaniline, wks, kgs	lb.	.43	.45	.43	.45	.43	.45
Nitrochlorobenzene, wks	lb.	...	.15	...	.15	...	.15
Toluenesulfonamide, bbls	lb.	...	.70	...	.70*	...	.70
Toluidine, bls, wks	lb.	...	.48	...	.48	...	.48
Penicillin, ampules per 100,000 units		.55	.95	.95	4.50	...	...
Pentaerythritol, tech	lb.	.27	.31	.29	.33	.29	.35½

PETROLEUM SOLVENTS AND DILUENTS

Lacquer diluents, tks, East Coast	gal.	...	.11¼	...	.11½	...	.11
Naphtha, V.M.P., East tks, wks	gal.	...	.11	...	.11	...	.11
Rubber solvents, East, tks, wks	gal.	...	.11	...	.11	...	.11
Stoddard Solvents, East, tks, wks	gal.	...	.10	...	.10	...	.09½
Phenol, U.S.P., drs	lb.	.10½	.11¼	.10½	.11¼	.10½	.13¼
Phthalic Anhydride, cl and lcl, wks	lb.	.13	.14	.13	.14	.13	.15½
Potash, Caustics, 88-92%, wks, sol.	lb.	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾
flake, 88-92%	lb.	.07	.07½	.07	.07½	.07	.07½
liquid, 45% basis, tks	lb.	...	.02¾	...	.02¾	...	.0275
dms, wks	lb.	.03¼	.03½	.03	.03½	.03	.03½
Carbonate, hydrated 83-85%	lb.	...	.05½	.05½	.05¾	.05½	.05¾
Chlorate crys, bgs, wks	lb.	.11	.13	.11	.13	.11	.13
Chloride, crys, tech, bgs, kgs	lb.	.08	nom.	.08	nom.	.08	nom.
Cyanide, drs, wks	lb.	...	.55	...	.55	...	.55
Iodide, bots., or cans	lb.	1.44	1.48	1.44	1.48	1.44	1.48
Muriate, dom, 60-62-63% K_2O bulk unit-ton	ton	...	.53½	...	.53½	.53½	.56
Permanganate, USP, wks dms	lb.	.20½	.21	.20½	.21	.20½	.21
Sulfate, 90%, basis, bgs	ton	...	36.25	...	36.25	...	36.25
Propane, group 3, tks	gal.	...	.03¼	...	.03¼	...	.03¼
Pyridine, ref., drms	lb.	.45	.45½	.45	.46	.45½	.46
R Salt, 250 lb bbls, wks	lb.	...	.65	...	.65	...	.65
Resorcinol, tech, drms, wks	lb.	.64	.74	.68	.75	.68	.75
Rochelle Salt, cryst	lb.	.43½	.47	.43½	.47	.43½	.47
Salt Cake, dom, blk wks	ton	...	15.00	...	15.00	...	15.00

l Producers of natural methanol divided into two groups and prices vary for these two divisions; *m* Country is divided in 4 zones, prices varying by zone.

* Spot price is ½c higher.

		Current Low	Current High	1944 Low	1944 High	1943 Low	1943 High
Saltpetre, grn, bbls	100 lb.	8.20	8.60	8.20	8.60	8.20	8.60
Shellac, Bone dry, bbls.	lb. r	.42½	.46	.42½	.46	.42½	.46
Silver Nitrate, 100 oz, bots 2,500-oz. lots	oz.	.47	.47¾	...	.32¾	...	.32¾
Soda Ash, 58% dense, bgs, c-l, wks	100 lb.	...	1.15	...	1.15	...	1.15
58% light, bgs cl	100 lb.	1.05	1.13	1.05	1.13	...	1.13
Caustic, 76% flake drms, cl	100 lb.	...	2.70	...	2.70	...	2.70
76% solid, drms,cl	100 lb.	...	3.80	...	2.30	...	2.30
Liquid, 47-49%, sellers, tks	100 lb.	...	1.95	...	1.95	...	1.95
Sodium Acetate, anhyd. dms	lb.	.08½	.10	.05	.10	.05	.06
Benzoate, USP dms	lb.	.46	.52	.46	.52	.46	.52
Bicarb, tech., bgs., cl., works	100 lb.	1.55	1.90	1.55	2.05	...	...
Bichromate, bgs,wks l.c.l.	lb.	.07⅞	.08½	.07⅞	.08½	...	.07¾
Bisulfite powd, bbls, wks	100 lb.	3.00	3.60	3.00	3.60	3.00	3.60
35° bbls., wks	100 lb.	1.40	1.65	1.40	1.65	1.40	1.65
Chlorate, kgs, wks c.l.	lb.	...	.06¼	...	.06¼	...	.06¼
Cyanide, 96-98%, wks	lb.	.14½	.15	.14½	.15	.14½	.15
Fluoride, 95%, bbls, wks	lb.	.07¼	.08¼	.07¼	.08¼	.07¼	.08¼
Hyposulfite, cryst, bgs, cl, wks	100 lb.	...	2.25	...	2.25	...	2.25
Metasilicate, gran, bbl, wks c-l	lb.	...	2.50	...	2.50	...	2.50
Nitrate, imp, bgs	ton	...	33.00	...	33.00	...	33.00
Nitrite, 96-98% bbl. cl.	lb.	...	.06¼	...	.06¼	...	.06¼
Phosphate, di anhyd. bgs. wks.	100 lb.	6.00	6.75	6.00	7.25	6.00	7.25
Tri-bgs, cryst, wks	100 lb.	2.70	3.10	2.70	3.40	2.70	3.45
Prussiate, yel, bbls. wks	lb.	...	.11	.10	.11	.10	.11
Silicate, 52°,drs,wks	100 lb.	1.40	1.80	1.40	1.80	1.40	1.80
40°, drs, wks, c-l	100 lb.	...	.80	...	.80	...	.80
Silicofluoride, bbls NY	lb.	.06½	.10	.06½	.12	.05	.12
Sulfate tech. Anhyd. bgs	100 lb.	1.70	2.20	1.70	1.90	1.70	1.90
Sulfide, cryst c-l, bbls, wks	100 lb.	...	2.40	...	2.40	...	2.40
Solid, bbls, wks	lb.	3.15	3.90	3.15	3.90	3.15	3.90
Starch, Corn, Pearl, bgs	100 lb.	...	4.08	...	4.08	...	3.47
Potato, bgs, cl	lb.	...	.0637	...	.0637	...	.0637
Rice, bgs	lb.	no stocks		no stocks		.09½	.10¼
Sweet Potato, bgs	lb.	no stocks		.07½	.09¼	...	.07½
Sulfur, crude, mines	ton	...	16.00	...	16.00	...	16.00
Flour, USP, precp, bbls, kgs	lb.	.18	.30	.18	.30	.18	.30
Roll, bbls	100 lb.	2.40	2.90	2.40	2.90	2.40	2.90
Sulfur Dioxide, liquid, cyl	lb.	.07	.08	.07	.09	.07	.08
tks, wks	lb.	...	.04	.04	.06	.04	.06
Talc, crude, c-l, NY	ton	...	13.00	...	13.00	...	13.00
Ref'd, c-l, NY	ton	13.00	21.00	13.00	21.00	13.00	21.00
Tin, crystals, bbls, wks	lb.	no stocks		no stocks		no stocks	
Metal	lb.	...	.52	...	.52	...	.52
Toluol, drs, wks	gal.	...	.32	...	.34½	...	.33
tks, frt all'd	gal.	...	.27	...	.28	...	.28
Tributyl Phosphate, dms lcl, frt all'd	lb.	...	.49	...	.49	...	.47
Trichloroethylene, dms, wks	lb.	.08	.09	.08	.09	.08	.09
Tricresyl phosphate tks.	lb.	...	.24	...	.24	...	...
Triethylene glycol, dms	lb.	.18½	.19½	.18½	.26	...	.26
Triphenyl Phos, bbls	lb.	.26	.27½	.31	.32	.31	.32
Urea, pure, cases	lb.	...	.12	...	.12	...	.12
Wax, Bayberry, bgs	lb.	no stocks		.25	nom.	.25	.26
Bees, bleached, cakes	lb.	no stocks		...	.60	...	.60
Candelilla, bgs crude	ton	no stocks		.34½	.48	.38	.48
Carnauba, No. 1, yellow, bgs, ton	lb.	no stocks		...	.83¼	...	.83¼
Xylol, Indus. frt all'd, tks, wks	gal.	...	.26	...	.27	...	.27
Zinc Chloride tech fused, wks	lb.	.05	.0535	.05	.0535	.05	.0535
Oxide, Amer, bgs, wks	lb.	.07¾	.07½	.07	.07½	.07	.07½
Sulfate, crys, bgs	100 lb.	3.40	4.15	3.40	4.35	3.60	4.35

OILS AND FATS

Babassu, tks, futures	lb.	...	.111	...	.111	...	.111
Castor, No. 3, bbls	lb.	.13¾	.14¼	.13¾	.14¼	.13¾	.14¼
China Wood, drs, spot NY	lb.	.39	.41	.39	.41	...	.39
Coconut, edible, drs NY	lb.	...	.0985	...	.0985	...	.0985
Cod Newfoundland, dms	gal.	.88	.90	.85	.90	...	.90
Corn, crude, tks, wks	lb.	...	.12¾	...	.12¾	...	.12¾
Linseed, Raw, dms, c-l	lb.	...	.1550	.151⁰	.1560	...	.1530
Menhaden, tks		...	.1225	...	.1225	...	.1225
Light, pressed, drs l.c.l.	lb.	...	.1300	...	.1200	.1305	.1307
Palm, Niger, dms	lb.	...	.0865	...	.0865	...	.0865
Peanut, crude, tks, f.o.b. wks	lb.	.12⅞	.13⅛	.12⅞	.13⅞	...	.18
Perilla, crude dms, NY	lb.	no stocks		...	.245	...	.245
Rapeseed, New Orleans, bulks	lb.	...	.1156½	...	.1156½	...	.1150
Red, dms	lb.	.13¼	.14¼	.13¼	.14¼	...	
Soy Bean, crude, tks, wks	lb.	...	.1175	...	.1175	...	.1175
Tallow, acidless, bbls	lb.	...	.14¼	...	.14¼	...	.14¼

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1—S. S. Drum Dryer 6' x 5'.
2—Stokes Rotary B Tablet Machines.

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1—6' x 60' Rotary Dryer or Kiln
5—Rotary Dryers, 6' x 40', 3½' x 16', 3' x 16', 4' x 20'
6—Horizontal Digesters, 6' dia. x 12' long, with agitators
2—Kelly #450 Filters
1—American 6' dia. 2 Disc Rotary Filters
1—FEINC 5' x 4' Rotary Continuous Filter with vacuum pump and motors
2—6' x 27'5" Rotary Steam Tube Dryers
6—Bucket Elevators, 25' to 40' centers
40—Agitator Headers, for 10' to 22' dia. Tanks
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1000 HP Motors, 10 to 150 HP, all Westinghouse, 3/60/440 volt, from 490 to 860 RPM
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STOCK ITEMS!

2—Vacuum Shelf Dryers; Buffalo, with 12—60" x 80" shelves; Devine with 13—59" x 78" shelves.
1—Sperry 24" x 24" Rubber Filter Press.
3—Shriver 36" x 36" Rubber Filter Presses, 18 to 50 chambers
5—Stokes Rotary Vacuum Dryers, 1'6" x 3'6", 30" x 10', 4' x 10', 3' x 12', 5' x 33'
2—Ross, Lehman 3 Roll Mills, 12" x 30", 16" x 40"
2—Abbe 175, 325 gal. Pebble Mills
6—Oliver 8' x 6' Stainless Steel Rotary Continuous Filters. NEW.
1—Oliver Robison 6' x 4' Top Feed Ni-Resist Rotary Continuous Filter
2—Oliver Rotary Filters, 3' x 1', 5' x 8'
2—Rotex Sifters, 40" x 84", 20" x 48"
1—Buffalo 5' x 6' Atmospheric Drum Dryer
1—Sweetland No. 2 Filter
5—Copper Vacuum Pans, 30" to 6' dia.
6—Powder Mixers, 100 and 800 lb.
2—Premulsion Mills, stainless steel, 3 HP motors
1—Lancaster 30" Batch Mixer
1—125 gal. Aluminum Jktd. Kettle
1—Filler Machine Co. 6 spout Filler
5—Double Arm Mixers, 10 to 100 gal.
12—Shriver Filter Press, 12" to 42" square, wood and iron
3—Hardinge Mills, 2' x 8", 4½' x 16", 4½' x 24"
3—Sharples No. 6 Centrifuges
1—Sharpless No. 6 Centrifuge, monel bowl, motor driven
3—De Laval No. 600 and 700 Clarifiers
6—Tolhurst 32", 40" Suspended Type Centrifugals
3—Buflovak Vacuum Drum Dryers, 48" x 40", 5' x 6'
2—Swenson Continuous Crystallizers, 24" x 30'
2—1750 gal. Lead Lined Closed Tanks
3—Tyler Screens; 1 Rotap, 1—4' x 5', 1—3' x 5'
2—Vallez Filters, 350, 450 sq. ft.
1—Barrel Shaker, 24" x 24" platform, motor driven

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5—**ROTARY KILNS**, 6′ x 60′, 8′ x 126′, 8′ x 135′

10—**ROTARY VACUUM DRYERS**; 3—Buffalo 5′ x 20′; 3—Devine 4′ x 25′; 1—Devine 4′ x 30′; 1—Struthers Wells 30″ x 12′.

3—Hardinge **BALL MILLS**. 4′ x 6″ x 16″, 5′ x 22″, also 6′ x 12′ Rod Mill.

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1—Komarek - Greaves **BRIQUETTE PRESS**, with 2-32″ x 24″ face, rolls for egg-shaped briquettes, rated 25 tons per hour.

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1—Devine Vacuum shelf Dryer, 8 shelves 40″ x 42″, complete with Stokes H. V. pump, condenser.

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1—32″ x 72″ **BUFLOVAK ATMOSPHERIC DOUBLE DRUM DRYER**, m.d.

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2—4-Roll **RAYMOND HIGH SIDE MILLS**, equipped for vacuum air separation—one with latest "whizzer" separator, one with double cone vacuum separator. Each including exhauster, cyclone collector and inter-connecting piping.

1—YORK 49 ton **AIR CONDITIONING UNIT** with 60 HP motor.

5—W. & P. **MIXERS**, 150 gal. cap., jack., double sigma blades for direct m.d.

Only a partial list.

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2—Sharpless #6 Clarifiers
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1—24″ Mikro Pulverizer—belt drive.
2—#600 De Laval Clarifiers.
3—3-roll Mills: 16x40 and 12x30″.
1—36″ Johnson 42-plate rec. Filter Press.
2—4 x 6′ Atmospheric Drum Dryers.
4—Lead-lined Tanks, 400 and 1000-gal.
1—#5 Sweetland Filter.
2—Oliver Filters: 5x4′ and 6x4′.
1—Union 10x20x12″ Dry Vacuum Pump.
1—3x15′ direct heat Rotary Dryer.
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128—10,000 & 8,000 gal. Tank Cars
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480 KW 2300 V Diesel Generator
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8—3 x 4 and 4 x 7 Hummer Screens
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24″ Blast Furnace with movable curb for Lead, Tin and similar metals
20 H. P. Charlotte 1½ in. Colloid Mill
1 yd. P. & H. 50′ Boom Cat. Crane

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1—4′ x 6′ Vertical, Iron Body, Steel Jacketed, 200 lbs. Pressure—600 gals.
1—6′ x 13′ Vertical Steel, Jacketed, 125 lbs. Pressure—3400 gals.
1—10′ x 25′ Vertical or Horizontal, Forge Welded Steel, Jacketed, 100 lbs. Pressure.

AGITATOR DRIVES

1—De Laval Type E Vertical Worm Gear. Ratio 70 to 1, 1200 R.P.M. Imput—10 H.P.
1—D.O. James—Size 1300 Vertical Worm Gear, Ratio 82 to 1, with base plate for 5 H.P. motor drive.
1—General Electric Vertical Gear Reduction Output Speed 5 R.P.M.—7½ H.P. G.E. Motor—Totally Enclosed—220 volts—3 phase—60 cycle.

CONDENSERS

1—Geubert Iron Body Condenser, 1¼″ Brass Tubing, 330 sq. ft. Surface.
1—Devine Unit Surface Condenser, ⅜″ Copper Tubing, 120 sq. ft. Surface.
1—All Copper Condenser, 1¼″ Tubing, 300 sq. ft. Surface.

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4—4′ x 24′ x 2′6″ Deep Stainless Clad Steel, Jacketed—1800 gals.

DRYERS

3—Barlett & Snow Vertical Steel, Jacketed, 10′ dia. x 4′ high, Agitators, Reducers, 2 H.P. Motors.

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2—Burkhardt 40″ dia. with Rubber Covered and Lith Coated Baskets.
1—King & Gerber, 38″ dia. with Bronze Basket.

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1—18′ dia.—Cast Iron—with Dephlegmator—15 sections, each 6″ high—2 top & bottom sections each 18½″ high.

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1—4′ dia. x 7′ deep, open top, jacketed steel kettle, bottom outlet, no agitator or drive. 700 gals. capacity.
1—8′-9″ dia. x 9′-0″ deep, "Lehigh" Cast Iron Kettle with 2 Heating Coils, Agitator & Drive, 2500 gals. capacity.
1—6′ dia. x 8′ deep Steel Kettle with removable Head, 1600 gals. capacity.
1—6′ dia. x 4′ deep copper kettle with steel jacketed agitator or drive.

MILLS

1—18″ Style D Schutz O'Neill Pulverizing Mill.
1—20″ Style D Schutz O'Neill Pulverizing Mill.
1—Raymond Impact Mill, Direct Drive.
1—No. 21 Quaker City Hammer Mill.
1—15″ x 8″ Jeffrey Rigid Hammer Mill.
1—Stokes No. 43 Granulator.
1—Robinson Unique Jr. Grinder.

PUMPS

1—Wilfley Model AB Centrifugal—7½ H.P. motor—2″ inlet, 1½″ discharge.
1—Shriver Diaphragm 3A—Rubber lined, 90 gals., motor chain drive.
4—Vacuum single phase stokes—size 8″ x 6″, pulley drive.
1—Quimby 4 stage Centrifugal, 500 gals.—75 H.P. G.E. motor.
1—American Well 2 Stage Centrifugal, 350 gal. 30 H.P. G.E. motor, Magnetic Starter.
1—Gould Triplex Plunger—size 3″ x 4″—25 gals.
2—Gould Triplex Plunger—size 8″ x 10″—400 V Belt Drive.
1—Quimby Screw Type—size 2″—5 G.P.M.—55′ head—motor drive.

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1—5′ dia. x 40′ long Horizontal Rotary Dryer, ½″ shell, complete with tires, ring gear, rollers gearing, base plates.

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ENGINEER—Chemical or Mechanical under 35, to work in Phila. area as head of small design group, handling plant layout, packaging, process development, etc. In old established company. Write fully enclosing snapshot (not returnable) previous earnings, education, etc., to S-34, P. O. Box 3495, Phila. 22, Pa.

RESIN SELLING CONNECTIONS being sought by young manufacturing concern. Will make arrangements on commission or other basis, with term of arrangement long enough to make it attractive, if you can supply reliable repeat business in field of Thermo-Setting Resins, Urea - Formaldehyde or Phenol - Formaldehyde types (liquid, lump, pulverized or spray—dried forms). Box 2078, Chemical Industries, 522 Fifth Ave., New York 18, N. Y.

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315 Washington Street Brooklyn 1, N. Y.

Plastics Outlook

(*Continued from page 53*)

mand for *urea and melamine resins* for adhesives, and production facilities appear to be ample to meet present demands.

There is no problem with respect to *laminating materials* availability at the present time.

Cast phenolics for certain end uses, such as radio cabinets, are being produced at capacity. The demand so exceeds the supply that orders are two and three months in arrears. A moderate expansion in cast resin facilities can be anticipated.

Customers' requirements for the various *phenolic liquid resins* for such special purposes as laminating, abrasives, cork insulations and glass wool, are being filled without too much difficulty at present.

The supply of cast *methly methacrylate sheet* exceeds the demand, and all customers' requirements are being filled with reasonable promptness.

Employee Relations

(*Continued from page 59*)

the foreman's job from being a dead-end street. If supervisors see possibilities for self-improvement, they will be more interested in training subordinates for upgrading. The foreman conference is an excellent medium for developing latent executive ability.

WHAT ABOUT WHITE-COLLAR WORKERS?

Every "fringe increase" awarded by the WLB whittled something away from the traditional preferred status of office personnel. Now that production workers enjoy vacations with pay, sick leave, hospitalization, separation pay and other benefits which once applied only to technical and clerical employees, white-collar people tend to feel that they are losing ground. In addition to witnessing the benefits which factory personnel have obtained from unionization, many typists, stenographers, bookkeepers and clerks have had actual shop experience during the war—including that of belonging to a union. Hence they are losing their fear of unionism, and are no longer ashamed to go out on the picket line. As a result of these trends, the white-collar contingent is feeling its muscles, and its sense of power is growing.

There is no easy solution to this problem. Extra "fringe increases" are of only temporary benefit. They soon spiral downward, first to the foremen and then to production workers. It is difficult, both in logic and in practice, to justify special privileges to stenographers and withhold them from women in the plant.

For all these difficulties, and for the hundred-and-one accompanying situations which add up to make the current labor crisis, there is only one answer: sound, honest, forthright labor relations. The techniques and procedures which weld management and the working force into a harmonious team have stood the test of wartime. Now it devolves on us all to apply these methods to our peacetime problems. We can do so in full confidence that they will accomplish the objective, bridging the gaps that temporarily exist between management and labor in certain industries—and acting as a sure preventative against future troubles in the others.

Commerce Bureau

(*Continued from page 65*)

32. Markets After the War, Senate Document No. 40; 1943. 10c.
33. Selected Indicators of General Business Conditions in the United States; 1945.
34. Foreign Trade After the War, Economic Series No. 28; 1943.
35. Foreign Market Prospects After the War; 1944.
36. The Potash Industry—A report submitted to the Department of Justice by the Department of Commerce; 1940.
37. Industrial Market Data Handbook of the United States, Domestic Commerce Series No. 107; 1939. $2.50.
38. Consumer Market Data Handbook, 1939, Domestic Commerce Series No. 102; 1939. $1.75.
39. Sugar and Molasses Trade of the United States in 1939; 1940. 10c.
40. References to publications on the Sugar Industries; Aug., 1939.
41. Foreign Markets for American Medicinal Products, Trade Promotion Series No. 193; 1939. 15c.
42. Regional Shifts in Population, Production and Markets, 1939-1943, Economic Series No. 30; 1943.
43. Sources of Regional and Local Current Business Statistics, Domestic Commerce Series No. 115; 1940. 30c.
44. An Outline for Making Surveys, Economic Series No. 34; 1944. 10c.
45. Survey of University Business Research Projects, 1943-1944, Economic Series No. 42; 1944.
46. University Bureaus of Business Research; 1943.
47. Rubber Statistics, 1900-1937, Trade Promotion Series No. 181; 1938. 10c.
48. Rubber Industry in the United States, Trade Promotion Series No. 197; 1939. 10c.
49. Rubber: History, Production and Manufacture, Trade Promotion Series No. 209; 1940. 10c.
50. Petroleum Industry of the Gulf Southwest, Domestic Commerce Series No. 44; 1930. 65c.
51. Foreign Trade Associations in the United States, Economic Series No. 43; 1945. Out of print. Revised edition in preparation but no date has been set for its release.
52. Trade and Professional Associations of the United States, Industrial Series No. 3; 1942. 70c. (3,100 national and interstate trade associations.)
53. A State-Local Businessmen's Organization Series, covering 14,000 local organizations in 4,000 cities, in all fields of business, was issued in 1943-1944. Individual state lists from this series are available on request from the Department's Field Offices or from the Bureau of Foreign and Domestic Commerce.
54. Statistics and Maps for National Market Analysis (Basic Information Sources); 1944.
55. Basic Industrial Markets in the United States: The Paint, Varnish and Lacquer Industry, Market Research Series No. 14.5; 1939. Out of print.
56. Basic Industrial Markets in the United States: The Pulp and Paper Industry, Market Research Series No. 14.4; 1937. Out of print.
57. Check Sheet—Introduction of New Industrial Products, Market Research Series No. 6; 1937. Out of print. (Revised edition in preparation but no date has been set for its release.)
58. Effect of City Water and Sewerage Facilities on Industrial Markets, Market Research Series No. 17; 1938. Out of print. (Available in libraries only).
59. Leather Industry of the United States, 1939. 5c.
60. Marketing Research Activities of Manufacturers, Market Research Series No. 21; 1939. Out of print.
61. Sales of Salad Dressing, Mayonnaise and Related Products; 1942.
62. Sources of Current Trade Statistics, Market Research Series No. 13; 1937. Out of print. (Superseded by "Sources of Regional and Local Current Business Statistics", Domestic Commerce Series No. 115, listed above.)
63. U. S. Pulp and Paper Industry, Trade Promotion Series No. 182; 1938. 15c.
64. World Paper Consumption, 1927-1938, $1.
65. Glossary of Paper Terms and Instructions to Exporters; 1932.
66. Pulp and Paper Trade Statistics of the Other American Republics, 1938-41, Economic Series No. 35; 1944.
67. Latin-American Plastics Industry and Trade; 1944.
68. South American Organic Chemical Industry and Trade; 1944. Out of print.
69. Domestic Market Prospects After the War; 1944.
70. Medicinal Products, U. S. Equivalents and Alternatives; 1945.
71. Containers—A Statistical Handbook, Industrial Series No. 13; 1944.
72. The World's Paper and Wood Pulp Industry Before and After V-E Day, Industrial Series No. 14; 1945.

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"WE" – EDITORIALLY SPEAKING

NOT THE LEAST of the season's joys was the pleasure afforded us by the warm Holiday greetings from our friends in the industry. In spite of the year's-end headaches of inventories, tax schedules, and all, many found time to drop us a card or a letter. And speaking of cards, it seems to be the card-makers' intention to make every mantelpiece in America a miniature Metropolitan Museum.

National Aniline's Lawrence Flett greeted us with the view of a church spire and snow-covered roofs seen through the silvery branches of a maple tree.

From A. P. Kroeger, assistant general sales manager of Montsanto's Organic Chemical Division, we received a greeting frontispieced by a slim, white, holly-entwined taper, burning with a yellow flame against a solid green background.

A similar green background—but with a jolly, red gloved-and-capped Santa replacing the taper—brought us Commercial Solvents' good wishes from John Cronk and Abner Hopkins, here in New York, and from Charlie Goodale in the Terre Haute office.

A nautical greeting, with a three-master under full sail churning through a heavy sea, came from Fallek Products Company; and just as active, in a different way, are the chimneys of the B. F. Goodrich plant on the card sent us by R. E. Powers.

Two fawns playing in the snow was the subject of the peaceful winter scene from Larry Bass, director of research of Air Production Co. and U. S. Industrial Chemicals, Inc.

From the Egloffs came a country scene —red barn, cozy house (probably oil heated), sleigh, and snow that really glitters. Being of a chemical turn of mind, we suspect that it is an adhesive mica preparation.

Contrast is afforded by the cards received from George F. Smith and Western Precipitation Corporation. The former shows a tree-bordered footpath illumined by a single lamp-post—all sheathed in the snow and ice of a mid-winter. The other card is a reproduction of a painting, "Golden Valley," by Maxfield Parrish. Here are the warm, golden tints of autumn and the sun-flecked leaves of a giant oak against the blue and purple majesty of the distant mountains. Not a New England Christmas, to be sure, but beauty all the same.

No card, but a thoughtful Christmas letter came to us from Thomas W. Elkington, president of the Philadelphia Quartz Company. Remembering the war and its awful climax at Hiroshima, he says, "Much work yet must be done to build the strong foundations of peace among nations. The energizing atom for the task lies in the heart of man."

To all these friends, and to all the other who sent us cards and letters, or only intangible good wishes ("Heard melodies are sweet, but those unheard are sweeter. . . ."!), we reciprocate with our own and say, "Thank you!"

Fifteen Years Ago

From Our Files of Jan. 1931

Hans Fisher, professor of organic chemistry in the Technical High School of Munich, wins the Nobel Prize in Chemistry.

Robert C. White and Harry W. Cole, Baird & McGuire, are re-elected president and secretary respectively of Disinfectant and Insecticide Manufacturers Association.

John C. Olsen, professor, chemical engineering, Brooklyn Polytechnic Institute, is elected to the presidency of the American Institute of Chemical Engineers.

Du Pont Ammonia Corp. plant at Belle, W. Va., has reduced working hours to 40 hours, from 48 hours. This action has been taken by the company, rather than lay off any of its employees on the operating staff.

H. L. Derby, president of the Kalbfleisch Co., has been elected a vice-president of American Cyanamid.

Hercules Powder has opened a new department to be called the Foreign Relations Department.

Archer-Daniels-Midland Co., has announced that it is now engaged in the production of soy bean oil.

A preliminary report was recently issued by R. R. Sayers and W. P. Yant of the Bureau of Mines of their study of methanol as an anti-freeze for automobiles. Briefly their conclusions may be summarized, "That there is no danger of poisoning from a reasonable use of methanol as an anti-freeze."

Thirty Years Ago

From Our Files of Jan. 1916

Monsanto Chemical Works, St. Louis, Mo., announces the production of acetphenetidin and phenolphthalein.

Congress is asked by Secretary McAdoo to appropriate $20,000 for dye experimental work.

Thomas A. Edison's plant at Silver Lake, N. J., for the manufacture of synthetic phenol, recently destroyed by fire, is to be rebuilt.

United States Alcohol Co. is reported closing $25,000,000 sale of alcohol with the French Government.

THE TROUBLES of the science reporter are many. But those of the scientist he is reporting are still more worrisome.

The story was set forth by Dr. Robert C. Hockett at a dinner honoring Howard W. Blakeslee, dean of science writers.

"The reporter," Dr. Hockett said, "often finds the scientist himself reluctant to co-operate. . . . The fact is that science progresses by almost incredibly small steps. Naturally the pure scientist has ultimate goals; these sustain his interest as he creeps toward them. Nevertheless there is always something much more important just ahead and he often feels he would like to finish a few more steps before telling his story. When he does try to explain the meaning of his work he cannot do so without describing some of those distant goals—which inevitably appear more interesting to the layman than the immediate achievement.

"The resulting report will naturally play up these ultimate objectives with the implication that they are at least nearer attainment than before. The scientist may feel he has made himself a little ridiculous before his colleagues."

Putting it another way, Dr. Hockett said that "the investigator in such an instance is in much the same position as a jigsaw enthusiast who has just placed a difficult piece. When it falls into place he feels certain that he has advanced toward his goal. Still he may not be sure for several more weeks whether in the end he will have a picture of Whistler's Mother or one of Washington Crossing the Delaware. If he tells his neighbors too soon that it is Whistler's Mother he will be embarrassed; yet that would not mean he had placed his pieces wrong!"

A popular New York columnist recently carried out a little chemical research of his own. He attended a press demonstration of some remarkable new plastic textiles, where beautiful models, gowned in these new fabrics, cavorted at a cocktail party, blithely spilling water on the gowns and wiping it off without a trace.

He got hold of some of the material and subjected it to the paramount hazard of cocktail parties—a lighted cigarette. Did it burn? No, but it melted. Now he wonders what a cocktail would do to it!

PATENTS AND TRADEMARKS

Abstracts of U. S. Chemical Patents

A Complete Checklist Covering Chemical Products and Processes

Printed copies of patents are available from the Patent Office at 10 cents each. Address the Commissioner of Patents, Washington, D. C., for copies and for general information concerning patents or trade-marks.

From Official Gazette—Vol. 579, Nos. 1, 2, 3, 4 (Oct. 2-Oct. 23)—p. 622

*Textiles

Textile decorating composition comprising pigment dispersed in lacquer, binder of which comprises carbamide-formaldehyde resin soluble in a mixture of butanol and xylene, to 1 part by weight of methyl abietate. No. 2,381,868. John Abrams to Interchemical Corp.

Textile printing paste comprising dispersion of color in vehicle comprising water-insoluble cellulose ether soluble in carbon tetrachloride, and solvent-soluble urea-formaldehyde resin, in mutual solution in organic solvents. No. 2,381,878. Norman Cassel to Interchemical Corp.

Treating liquid for prolonging life of vegetable fibres composed of dispersion of bitumen in aqueous solution of alkaline agent selected from ammonia and aliphatic amines together with soap of bactericidal metal. No. 2,382,337. Harold Schiller to Socony-Vacuum Oil Co. Inc.

Producing pattern effects in cellulosic fabric, which comprises: printing fabric in different patterns and in registered relation with a pigment-containing, wash-resistant, water-insoluble reserve which is permeable to shrinkage swelling agents and with a water-soluble reserve which is impermeable to parchmentizing agents, subjecting fabric to parchmentizing and shrinking treatment. No. 2,382,416. George Heberlein and Ernst Weiss to Heberlein Patent Corp.

Producing non-felting wool which comprises heating wool in aqueous solution of basic nitrogen compound selected from primary and secondary amines, mild quaternary ammonium bases which do not dissolve wool, and alkalisalts of amino acids. No. 2,382,632. Frederick Hessel and John Rust to Ellis-Foster Co.

Device for treating piece goods from vegetable, animal, and artificial fibers, with chlorinating liquors. No. 2,382,726. Helmuth Korte, Wilhelm Waibel, and Johann Metzger.

Treating a tow of casein or like protein fibers with hardening liquid of specific gravity greater than specific gravity of fibers. No. 2,383,358. Robert Wormell to Courtaulds Ltd.

Coating thread moving at continuously increasing linear speed which comprises, passing thread through bath of liquid coating material freely held in suspension, said bath being characterized by a regularly increasing width. No. 2,383,505. Malcolm Lyle and Clifton Smith to North American Rayon Corp.

Continuous alkali treatment of fibrous material. No. 2,383,684. Johan Richter to Aktiebolaget Kamyr.

Bleaching and scouring cellulosic textile material which comprises treating with alkaline solution of hypochlorite, alkali metal chlorite and a detergent. No. 2,383,900. George Vincent, Archie Dubeau and John Synan to The Mathieson Alkali Works, Inc.

**Water, Sewage and Sanitation

Softening hard water comprising dissolving in water an alkaline material selected from trisodium phosphate, sodium hydroxide, sodium carbonates, etc., and thereafter, dissolving tetrasodium pyrophosphate in water. No. 2,381,960. Aaron Johnson to E. I. du Pont de Nemours & Co.

Method and apparatus for treating water. No. 2,382,490. Joseph Lawlor.

Treating water for removing dissolved silica therefrom, which comprises, passing water through precipitation tank, adding to water in upper portion of tank magnesium bearing quicklime. No. 2,382,902. Thomas Pankey and Carroll Imhoff to Allis-Chalmers Mfg. Co.

Water treating and purifying apparatus. No. 2,383,086. Joseph Sebald to Worthington Pump and Machinery Corp.

Emergency type sea water distilling device of a portable type. No. 2,383,294. John De Stefano.

*Agricultural

Preparing whole grain wheat to make mild abrasive material for air blast cleaning of metals. No. 2,383,988. Frank Perry.

Process and device for full-cell treatment of timber or similar material. No. 2,384,027. Bror Hager and Stig Kjellstrom to Bolidens Gruvaktiebolag.

Isomerizing a bicyclic terpene containing material which comprises heating material above its boiling in liquid phase in presence of water as sole catalyst. No. 2,384,482. Robert Martin to Hercules Powder Co.

Making touch starch gel precipitable by aluminum sulfate which consists in suspending starch in water containing water-dispersible urea-formaldehyde condensation product, dissolving sodium metasilicate in water, and adding latter solution rapidly to former, with violent agitation. No. 2,385,438. George Fowler and Donald Pattilloch; said Pattilloch to Chemical Development, Inc.

Hydrating turpentine, which comprises subjecting turpentine containing not less than 4 per cent of turpentine foots to reaction with dilute mineral acid solution. No. 2,385,572. Torsten Hasselstrom and Burt Hampton; said Hampton to G & A Laboratories, Inc.

Improving resistance of casein threads to attack by boiling aqueous liquids which consists in treating threads in bath containing formaldehyde, alkali metal sulphate and sulphuric acid to convert sulphate into bisulphate. No. 2,385,674. Robert Wormell and Claude Knight to Courtaulds Ltd.

Isomerizing a pinene, which comprises heating pinene in presence of halloysite until isomerization is at least partially complete. No. 2,385,711. William Kirkpatrick to Hercules Powder Co.

Green-wood mold and sap-stain control agent which contains mixture of

* *Continued from Vol. 577, Nos. 2, 3, 4.*

Patents Available for License or Sale

The Patent Office is regularly publishing a Register of Patents Available for Licensing or Sale. Patents concerning chemical products and processes appear below.

November 13, 1945

Pat. 2,379,378. **Combined Supporting Ring and Safety Closure Device for Fire Extinguishers.** Patented June 26, 1945. Split metal band comprises supporting bracket, hinged members and fastening means. When fastened around top edge of tank a portion of band extending inwardly will overlie cap on inlet. Band is notched to fit around outlet. Casing housing fastening means is sealed with paper or other suitable material which prevents access until disrupted. (Owner) Claude Rousseau, c/o Electrical Mfg. Co., Ltd., Montmagny, Quebec, Canada. Groups 33—73; 39—99. Reg. No. 384.

Pat. 2,360,731. **Wedge-Ring Seal.** Patented Oct. 17, 1944. Reg. No. 393.

Pat. 2,360,734. **Compressible Sealing Ring.** Patented Oct. 17, 1944. Reg. No. 394.

Pat. 2,360,735. **Laminated Sealing Ring.** Patented Oct. 17, 1944. Reg. N. 395.

The three patents listed above relate to kindred subject matter. Substantially wedge-shaped resilient sealing ring is adaptd to seat in a correspondingly V-shaped groove which is somewhat larger to permit ring to slip or pivot from one side of groove to the other. The seal may be either wholly of one type of resilient material or comprise sections or layers of varying degrees of hardness. Seal is particularly adapted for hydraulic field. (Owner) The Maytag Company, Newton, Iowa. Groups 30—31; 35—61—69.

Pat. 2,360,733. **Faucet Construction.** Patented Oct. 17, 1944. Valve having a piston provided with grooves having two resilient wedge shaped sealing rings therein, one near top and other near bottom. When valve is closed bottom ring seals valve in piston-like manner. Top ring functions in conventional manner. Prevents undue pressure being exerted on valve seat. (Owner) The Maytag Company, Newton, Iowa. Group 33—61—66. Reg. No. 396.

Pat. 2,360,732. **Hydraulic Coupling.** Patented Oct. 17, 1944. Coupling is provided adjacent its opposite ends with V-shaped recesses deep enough to carry lock and co-operating spring washers. Washers fit around engage and anchor tubing or pipe sections. Device carries two intermediate resilient sealing rings seated in grooves for sealing ends of tubing to prevent escape of fluid. No tools are needed in joining sections together. (Owner) The Maytag Company, Newton, Iowa. Group 35—61—69. Reg. No. 397.

Pat. 2,113,063. **Fluid Testing Apparatus.** Patented Apr. 5, 1938. Apparatus suitable for testing gases or liquids, the former for the presence of foreign gases or vapors, the latter for pH value or concentration of suspended or dissolved solids. Speed and volume of flow is controlled; safeguard against tearing tape; and provides adaptability to different attachments for reading test spot. Tape can be stopped while test is being performed. Designed to give a series of spot tests on a continuous tape of paper or other porous material. Exhausted gas after test is carried away to prevent tape fogging. (Owners) Albert R. Stryker, 107 Billups Drive, Laurenceburg, Ind, and Richard F. Phipps, 3797 Broadview Drive, Cincinnati, Ohio. Groups 28—89; 35—65; 36—13. Reg. No. 403.

November 20, 1945

Pat. 2,321,282. **Dry Hydrogen Chloride.** Patented June 8, 1943. Apparatus for the production, in one step, of dry hydrogen chloride from any concentration of hydrochloric acid. Method utilizes dehydrating material and avoids the use of fractionating columns, condensers or circulating equipment. Obtains dry HCl gas of 99% or even containing less than 0.3% water at low cost. Apparatus adaptable to obtain dry HCl periodically or continuously from dilute aqueous acid. (Owner) Bay Chemical Co., Inc., 1048 Constance St., New Orleans 9, La. Groups 28—86—89; 35—51. Reg. No. 579.

Pat. 2,323,185. **Rubber Hydrohalide.** Patented June 29, 1943. Process of making rubber compositions including rubber hydrohalides which are both tough and flexible. Several methods cited and inventor claims production, at low cost, of uniform results not heretofore possible. Rubber hydrohalide compositions useful as sheet wrapping, coatings, and waterproofing. (Owner) Bay Chemical Co., Inc., 1048 Constance St., New Orleans 9, La. Groups 28—86; 30—41. Reg. No. 580.

Pat. 2,289,089. **Treatment of Bornyl Chlorides Residues.** Patented July 7, 1942. When crystals of bornyl chloride are separated from the mixture that produces it, by chilling much additional bornyl chloride remains in the residue. This patent relates

sodium 8-quinolinolate and sodium pentachlorophenate. No. 2,385,764. Roland Shumard to Monsanto Chemical Co.

*Biochemical

Aromatic amine-N-pentapyranosides and process for manufacture of same. No. 2,384,102. John Lee, Ulrich Solmssen, and Leo Berger to Hoffmann-La Roche, Inc.

Manufacture of a pentose from primary aromatic amine N-pentoside. No. 2,384,103. John Lee, Ulrich Solmssen, and Leo Berger to Hoffmann-La Roche, Inc.

Triacylriboses, where acyl residue is selected from lower fatty acids and carboxylic acids of benzene series. No. 2,384,104. John Lee and Leo Berger to Hoffmann-La Roche, Inc.

Ribitylaminobenzenes and process for manufacture thereof. No. 2,384,105. John Lee, Ulrich Solmssen, and Leo Berger to Hoffmann-La Roche, Inc.

a-Aniline-N-d-ribofuranoside and process for the manufacture thereof. No. 2,383,977. John Lee and Leo Berger to Hoffmann-La Roche, Inc.

Preparing modified whole corn protein from corn gluten which contains starch and about 50% of proteinaceous material. No. 2,384,388. Richard Monte and Jacob Gottfried to Corn Products Refining Co.

Making glue and gelatin which comprises subjecting pork skins, hide trimmings, and other animal waste to aqueous solution of a peptizing agent selected from urea, thiourea and formamide. No. 2,384,673. Donald Grettie to Industrial Patents Corp.

Production of itaconic acid and its salts, comprising fermentation of a nutrient-containing carbohydrate solution by means of submerged aerobic growth of itaconic acid-producing strain of Aspergillus terreus. No. 2,385,283. Jasper Kane, Alexander Finlay, and Philip Amann to Chas. Pfizer & Co. Inc.

*Cellulose

Preparation of wood pulp cellulose for nitration. No. 2,384,853. William Sillick to Eastman Kodak Co.

Cold purification process for production of alphacellulose from wood pulp. No. 2,385,259. William Collings, Richard Freeman and Martin Roberts and Willis Hisey to The Dow Chemical Co.

*Ceramics

Refractory brick containing silica, comprising quartzite of Pennsylvania ganister and Medina quartzite bonded with a fire clay of Pennsylvania and Missouri fireclay and Alabama and Georgia kaolin. No. 2,384,180. Hobart Kraner to Bethlehem Steel Co.

Clay settling, centripetal reaction concentrator and amalgamator. No. 2,385,094. Frederick Maynard.

Vitrifiable flux comprising bismuth trioxide and lead-borosilicate composition containing between 30% and 90% PbO, between 5% and 40% SiO_2 and between 4% and 25% B_2O_3. No. 2,385,580. James Knox to E. I. du Pont de Nemours & Co.

Production of enamelware by spreading and drying successively two superposed layers of slip and firing the whole, which consists in including in composition of slip of nether layer 2-10% of silicate of soda, whereby blistering in ultimate firing is prevented. No. 2,385,573. Oscar Hommel, deceased, by Ernest Hommel, Eda Goldstein and The Union Trust Co. of Pittsburgh, executors, to The O. Hommel Co.

*Coatings

Continuously coating side of traveling strip of metal with a thin and uniform layer of a coating material. No. 2,383,964. William Grupe to Interchemical Corp.

Coating composition comprising chlorinated rubber as principal film forming constituent and containing polymerized vinyl acetate and plasticizer selected from chlorinated paraffin and a liquid long oil nondrying oil modified alkyd resin. No. 2,384,132. James Wallace Raynolds.

Manufacturing wire insulated with coating of normally solid polymer of ethylene having molecular weight of at least 10,000. No. 2,384,224. Edmond Williams to Imperial Chemical Industries Ltd.

Coating composition comprising water insoluble resinous vehicle, a pigment, oil acid, blown oil, and compound having formula R-OH where R is selected from hydrogen and the lower alkyl groups. No. 2,384,270. Ladislaus Balassa to E. I. du Pont de Nemours & Co.

Lacquer comprising aluminum bronze powder in vehicle consisting of solution of nitrocellulose and camphor in volatile organic solvents, the lacquer producing films on metal which can be carbonized by heating in hydrogen to produce black surfaces which will withstand high temperatures and dissipate heat rapidly. No. 2,384,493. Clifford Rolle to Interchemical Corp.

Conductor coated with insulating coating consisting of end products obtained by heating aqueous solution of silicate of soda having a high silica to soda ratio, to drive off all free water from coating without fusing residual coating matter. No. 2,384,542. Hal Fruth, Walter Haas, Jr. and Ernest Walters to Western Electric Co. Inc.

Asphaltic coating composition, comprising asphalt, mixture of mica, and a thinner. No. 2,384,671. Joseph Fratis to California Research Corp.

Non-gelling nitrocellulose lacquer containing malonic acid. No. 2,385,125. Gerald Barrett to Monsanto Chemical Co.

Water-resistant coating composition which is stable to putrefaction and viscosity changes which consists of soybean protein, a water-soluble salt of metal selected from zinc, cadmium, and magnesium, and aqueous medium selected from aqueous ammonia and aqueous primary aliphatic amines. No. 2,385,240. Harris Ware to Hercules Powder Co.

Producing tightly adherent insulative coating on surfaces of silicon steel sheet stock, which comprises oxidizing silicon in sheet stock at surfaces to form silica, coating surfaces with magnesia bearing substance, etc. No. 2,385,332. Victor Carpenter and Samuel Bell and Joseph Heck to The American Rolling Mill Co.

*Dyestuffs

Coloration of cellulose acetate fibers, foils, films, which comprises applying solution of 1:4-di-(orthomethoxy-phenylamino)-anthraquinone in liquid medium which is swelling agent for cellulose acetate and which comprises mixture of acetone and ethyl alcohol. No. 2,384,001. Alexander Wesson to British Celanese Ltd.

Symmetrical disazo N.N'-diaryl urea type dyestuff. No. 2,384,283. Karl Conrad and Louis Koberlein to Allied Chemical & Dye Corp.

Azo dyestuffs. No. 2,384,419. Richard Fleischhauer and Adolf Muller and Carl Schultis to General Aniline & Film Corp.

Mixtures of azo dyestuffs. No. 2,384,734. Friedrich Felix and Alphonse Heckendorn to Society of Chemical Industry in Basle.

Azo dye containing sulfonic acid group. No. 2,384,749. Arthur Knight to Imperial Chemical Industries Ltd.

Monoazo acid dyestuffs. No. 2,384,750. Arthur Knight and William Stephen to Imperial Chemical Industries Ltd.

Monoazo acid dyestuffs. No. 2,384,751. Arthur Knight and William Stephen to Imperial Chemical Industries Ltd.

Monoazo dyestuffs. No. 2,384,752. Arthur Knight and William Stephen to Imperial Chemical Industries Ltd.

Monoazo dyestuffs. No. 2,384,753. Arthur Knight and William Stephen to Imperial Chemical Industries Ltd.

Monoazo dyestuffs. No. 2,384,754. Arthur Knight and William Stephen to Imperial Chemical Industries Ltd.

Monoazo dyestuffs. No. 2,384,755. Arthur Knight to Imperial Chemical Industries Ltd.

Vat dyestuffs being carbazoles obtained by ring closure with aluminum chloride of pentanthrimides. No. 2,385,113. Glen Smyth to American Cyanamid Co.

Manufacture of vat dyes wherein alpha beta-bis-(9:9'-anthronylidene)-ethane is reacted in solvent of nitrobenzene and nitrotoluene with compound of class of carboxylic acid chlorides and carboxylic acid anhydrides which are not inner anhydrides, which comprises carrying out reaction in presence of sulfuric acid or sulphamic acid. No. 2,385,185. John Batty and David Fairweather to Imperial Chemical Industries Ltd.

Disazo dyestuffs. No. 2,385,698. Richard Fleischhauer and Adolf Muller to General Aniline & Film Corp.

Polymethine dyestuffs and process of preparing them. No. 2,385,747. Hans von Freyberg and Heinrich Koch to General Aniline & Film Corp.

*Equipment

Apparatus for determining pressure conditions within sealed container, portion of enclosure forming container being deformable under a pressure differential between interior and exterior of container. No. 2,383,936. John Hohl to Owens-Illinois Glass Co.

Apparatus for forming extruded plastic material into pieces of predetermined dimensions. No. 2,383,989. William Pilcher to E. I. du Pont de Nemours & Co.

Gravity meter comprising a support, gravity-responsive means, elastic support member for supporting gravity-responve means, etc. No. 2,383,997. Reginald Sweet to Stanolind Oil and Gas Co.

High-temperature duty casing for temperature-responsive member, comprising inner refractory casing portion comprising material selected from vitreous silica and sillimanite, and adherent coating consisting of graphite and mica. No. 2,384,024. George Goller to Rustless Iron and Steel Corp.

Glass container for corrosive liquids and like comprising plates of glass set up in angular relation with respect to each other to form side walls of containers. No. 2,384,084. Daniel Downes to Pittsburgh Plate Glass Co.

Container for corrosive substances comprising narrow plates of glass laid up flat in face to face contact to provide side walls, said plates being bonded together at contiguous faces by a corrosion resistant cement. No. 2,384,099. Percy Knudsen to Pittsburgh Plate Glass Co.

Protecting caustic soda solutions of 50% and upward concentration from contact with surfaces of metallic containers, comprising providing rubber latex in fluid form and containing a vulcanizing agent, applying layer of latex to surfaces, etc. No. 2,384,111. Dwight Means to Pittsburgh Plate Glass Co.

Oil fired single effect evaporator. No. 2,384,226. Eugene Worthen and Benjamin Fox to Buena Vista Iron Co.

Extraction thimble. No. 2,384,230. Melvin Arnold to E. I. du Pont de Nemours & Co.

Catalyst chamber. No. 2,384,258. George Oberfell to Phillips Petroleum Co.

Apparatus for recovery of solid constituents from reaction mixture composed of solid and liquid **vaporizable constituents which comprises a** separatory chamber, auxiliary chamber directly adjacent said separatory chamber, etc. No. 2,384,298. Arthur Green to Jasco, Inc.

Burning halogenated organic vapors adapted upon combustion to liberate halogen, in combustion vessel of platinum alloy of 70% to 99% platinum and 1 % to 30% of metal of rhodium, iridium, and ruthenium. No. 2,384,368. Harold Crouch and Henry Stauss to Baker & Co. Inc.

to the recovery of the bornyl chloride from such residue. Process recited in patent. (Owner) Bay Chemical Co., Inc., 1048 Constance St., New Orleans 9, La. Group 28—33—82. Reg. No. 581.

Pat. 2,288,409. **Free-Flowing Salt Composition.** Patented June 30, 1942. Small portions of finely divided magnesium, calcium, or aluminum stearate or palmitate are added to ordinary salt to prevent absorption of moisture and to overcome its tendency to cake. Insures free flowing action in damp weather. (Owner) Bay Chemical Co., Inc., 1048 Constance St., New Orleans 9, La. Group 28—85. Reg. No. 582.

Pat. 2,319,832. **Pipe Hanger.** Patented May 25, 1943. A simple arrangement of demountable parts to support a pipe in position on a wall or ceiling, etc. Consists of a spring metal band, rubberlined, perforated near the ends through which passes a U-shaped piece of gauge wire with inwardly bent prongs which lock in slots of two plates held to ceiling by means of a screw or bolt. (Owner) Louis L. Trochim, P. O. Box 767, Seattle 1, Wash. Groups 33—50—73; 39—72—96; 40. Reg. No. 583.

Pat. 2,130,542. **Paint Mixer.** Patented Sept. 20, 1938. An attachment to evenly stir paint within a container. Consists of a pair of detachable, adjustable L-shaped sheet-metal blades affixed to a shaft with a handle attached, which when rotated acts as an agitator. May be rotated by hand or means of power. Held rigid by metal strap to sides of can or jar by means of clamps. (Owner) Fred M. Giddings, 132 Duffield Ave., Galesburg, Ill. Groups 33—12—41; 40. Reg. No. 589.

* *Continued from Vol. 578, Nos. 1, 2, 3, 4.*

System for vaporizing crude oil for use as a fuel for internal-combustion engines and converters functionable therein. No. 2,384,472. Lovell Landers, Jr.

System for vaporizing crude oil for use as a fuel for internal-combustion engines and converters functionable therein. No. 2,384,473. Lovell Landers, Jr.

Incinerating organic substances containing phosphorus, using incinerating vessel constructed of alloy of platinum and gold containing 0.2% to 6% gold. No. 2,384,502. Johann Streicher to The American Platinum Works.

Apparatus for forming corrosion resisting films consisting of an evacuable container; means for evacuating container; and heating filament for heating metal to evaporation temperature thereof, said filament comprising strand of tungsten wire coated with metal having evaporation temperature higher than evaporating temperature of first-named metal. No. 2,384,576. Joe Swope, Jr. to Bausch & Lomb Optical Co.

Apparatus for utilizing liquefied gases including plurality of containers for reception of liquefied gas under pressure, etc. No. 2,384,677. Robert Hill to J. E. Taylor, doing business as Taylor Engineering Co.

Baffling structure for heat exchangers of shell and tube type in which fluid flowing externally of tubes enters adjacent one end of shell and leaves adjacent other. No. 2,384,714. Eugen Villiger to Aktiengesellschaft Fuer Technische Studien.

Chemical-heating structure for contents of cans and like which consists in composite sheet folded upon itself and sealed at longitudinal margins, the container having inner layer consisting of metallic foil, and a cartridge within container, cartridge enclosing chemical mixture to produce heat in presence of water. No. 2,384,720. Gordon Babcock, Francis Rethwisch and Vincent Furnas to Reynolds Metals Co.

Crystallizing evaporator. No. 2,384,747. John Hughes to Zaremba Co.

Centrifugal separator. No. 2,384,784. John Tholl to American Tool & Machine Co.

Catalytic heater comprising a casing, absorbent material to be saturated with vaporizable fuel, etc. No. 2,384,852. George Schmitt to Cardinal Products, Inc.

Apparatus for cooling, drying and desilting granular material comprising a tower having upper and lower sections, etc. No. 2,384,891. John Collins and Clifford Ashton.

Gas cutting torch having tip, number of gas passages in tip terminating in a circular series of discharge orifices in face of tip for supplying a combustible gas mixture to preheating flames, etc. No. 2,384,921. Howard Hughey to Air Reduction Co. Inc.

Filtering apparatus. No. 2,384,972. William Smalley to The Paterson Engineering Co. Ltd.

Bottle cleaning apparatus. No. 2,385,050. Ernest Becker to The Liquid Carbonic Corp.

Apparatus for continuous fractional distillation, comprising a cylindrical chamber, a second cylindrical chamber disposed within said first chamber, etc. No. 2,385,074. Edwin Guignard.

Spray booth type of gas cleaner having work locus, wash chamber, air passage extending from locus to chamber, etc. No. 2,385,077. George Harker and Eric Gustafsson, George Allan and Roy Nelson to Binks Manufacturing Co.

Hollow fin heat exchanger. No. 2,385,080. Seymour Heymann to Stewart-Warner Corp.

Liquid measuring and discharging device comprising vessel having inlet and discharge conduits to supply liquid to and discharge same from said vessel, etc. No. 2,385,092. John Lyall to Armstrong Cork Co.

Apparatus for cooling soap and similar solidifiable materials comprising cooling cell of two side frame members connected by a bottom frame member, and two rectangular side plates secured to frame members to form a narrow rectangular chamber open at top, etc. No. 2,385,134. Daniel Hackett to Lever Brothers & Unilever Ltd.

Heater for heating gases to high temperatures. No. 2,385,177. Robert Wiederkehr to Aktiengesellschaft fuer Technische Studien.

Catalytic reactor in combination with a reaction chamber, means for continuously passing solid catalyst in divided state into said chamber, etc. No. 2,385,189. Vernon Bowles to The Lummus Co.

Open-hearth furnace and method of operation. No. 2,385,261. John Marshall Crowe.

Machine for solidifying and stacking a material that may be extruded and solidified. No. 2,385,322. Charles Walter to Industrial Patents Corp.

Metal-melting furnace comprising: a housing; a combustion chamber in said housing, etc. No. 2,385,333. Channing Clapp and Boyd Johnson to The Carborundum Co.

Controlled fractional distillation apparatus. No. 2,385,345. Robert Burk to The Standard Oil Co.

In fractionating column provided with plurality of vertically spaced bubble trays, downspouts for said trays. No. 2,385,355. Clarence Gerhold to Universal Oil Products Co.

Electric power cable containing fluid stop occupying limited length intermediate end sections of finished, intact, sheathed, multi-conductor cable having conductors initially insulated with laminated material impregnated with insulating fluid and having filler strips in channels between conductor insulation, comprising solid polymer formed in situ from monomer having formula described in patent. No. 2,385,558. John Webb to International Standard Electric Corp.

Block grease testing apparatus. No. 2,385,656. Herschel Smith to Gulf Oil Corp.

Retort comprising elongated, cylindrical reaction chamber equipped with doors at its ends, a furnace enclosing said chamber and supporting it in inclined position for gravity unloading of charges therefrom, etc. No. 2,385,731. Elmer Records.

Pressure vessel for holding fluids under superatmospheric pressure comprising cylindrical body, removable head extending into body of cylindrical body and having a cut out recess forming annular space with interior wall thereof, a gasket and retaining ring in said annular space, etc. No. 2,385,754. Henry Baker to Chemical Construction Corp.

*Explosives

Preparing cast explosive charges, which comprises blending trinitrotoluene and wet pentaerythritol tetranitrate, raising temperature of mixture to a point where trinitrotoluene becomes molten, etc. No. 2,384,730. Clyde Davis and William Kirst to E. I. du Pont de Nemours & Co.

Propellant smokeless powder having surface glaze of water-insoluble metallic salt of a higher monobasic aliphatic acid. No. 2,385,135. Harrison Holmes to E. I. du Pont de Nemours & Co.

Continuous wet screening process for water-insoluble explosive compounds from trinitrotoluene, trimethylene trinitramine, pentaerythritol tetranitrate. No. 2,385,162. Hubert Richardson to E. I. du Pont de Nemours & Co.

*Fine Chemicals

Manufacture of N-substituted aminoalkylidene succinic acid compound selected from esters and nitriles of general formula described in patent. No. 2,384,068. Franz Bergel and Aaron Cohen to Roche Products Ltd.

Making 2,4-dinitro-6-cyclohexyl-phenol, reacting ortho-cyclohexyl-phenol sulphonic acid with ammonium nitrate in water as reaction medium. No. 2,384,365. Joseph Britton and Robert Dosser to The Dow Chemical Co.

Manufacture of neutral esters of steroid compounds containing hydroxy groups capable of being esterified, and polybasic acids, comprising reacting hydroxy steroid compound of C_{19} and C_{21} series with member of polybasic carboxylic acid polyhalogenides, etc. No. 2,384,550. Hans Inhoffen to Schering Corp.

Improving characteristics of tetraiodophenolphthalein. No. 2,384,425. Leonard Sargent to Burroughs Wellcome & Co. (U. S. A.) Inc.

Methylene bis (dimethyldithiocarbamate). No. 2,384,577. John Thomas to E. I. du Pont de Nemours & Co.

Derivatives of 5-amino-1,3-dioxanes and method of making same. No. 2,384,605. Melvin De Groote to Petrolite Corp. Ltd.

Derivatives of 5-amino-1,3-dioxanes and method of making same. No. 2,384,606. Melvin De Groote to Petrolite Corp. Ltd.

Acylated and oxyalkylated derivative of 5-amino-1,3-dioxanes. No. 2,384,607. Melvin De Groote to Petrolite Corp. Ltd.

Acylated derivative of a hydroxylated aminoalcohol ester of carbonic acid. No. 2,384,608. Melvin De Groote and Bernhard Keiser to Petrolite Corp. Ltd.

Sulphonic acids of the 5-oxo imidazoline series. No. 2,384,837. Oskar Huppert.

Esters of 4-cyclohexene-1,2-dicarboxylic acid. No. 2,384,955. Clarence Moyle to The Dow Chemical Co.

N-substituted derivatives of 4,4'-diaminodiphenyl ether. No. 2,385,088. Hans Lecher, Robert Parker and John Denson to American Cyanamid Co.

Tertiary alkamine ester of a para dialkylamino alkoxy methylbenzoic acid. No. 2,385,104. Victor Salvin and Arthur Hill to American Cyanamid Co.

Long chain alkyl substituted 4-amino-1,8-naphthalic acid imides. No. 2,385,106. Mario Scalera and Asa Joyce to American Cyanamid Co.

2-Nitro-3-methoxy-phenol and process of making same. No. 2,385,282. Charles Jaeger, Jr. to Lynch and Co.

Making p-aminobenzene sulphonylcarbamide, the step of boiling sulphanilamide with potassium cyanate and alcohol until mass dissolves and potassium salt of p-aminobenzene sulphonylcarbamide is obtained. No. 2,385,571. Erich Haack.

Producing aminopyrimidine which comprises dispersing halogenated aminopyrimidine in liquid ammonia, reacting metallic sodium with dispersed halogenated aminopyrimidine, decomposing sodamide formed and recovering aminopyrimidine. No. 2,385,761. Lucas Kyrides to Monsanto Chemical Co.

*Food

Powdering spices comprising coarsely crushing spice, removing major portion of flavoring oil, finely grinding low-oil-containing solid material, and restoring flavoring oil to finely ground solid material. No. 2,384,532. William Bush and Edward Lasher to California Flaxseed Products Co.

Packaging meatloaf which comprises enclosing meatloaf in tube of elasticized rubber hydrochloride film. No. 2,385,257. Chester Cavallito to Wingfoot Corp.

Improving milk, cream, curd and cheese whose sensitivity of reaction with respect to acidification, curdling and ripening phenomena is deficient due to lack of organic salt compounds of milk constituents, consisting in incorporating with milk, etc., organic salt compounds selected from blood sera and conc. purified sap obtained from grasses and leaves freshly gathered before inflorescence. No. 2,385,569. Georg Friedel.

*Inorganic

Obtaining available magnesium oxide from serpentine. No. 2,384,008. Hellmuth Brandenburg to Idaho Maryland Mines Corp.

Recovering a magnesium salt solution from unstable hydrous magnesium silicate such as serpentine, genthite, and garnierite. No. 2,384,009. Hellmuth Brandenburg to Idaho Maryland Mines Corp.

Producing magnesium sulphate from serpentine containing silica and calcium salts. No. 2,384,010. Hellmuth Brandenburg to Idaho Maryland Mines Corp.

Removing oxygen present as impurity in nitrogen, to produce nitrogen containing not more than 0.001% of oxygen, which consists in adding hydrogen to combine with oxygen present in gas. No. 2,384,065. Frederick Balcar to Air Reduction Co. Inc.

Manufacture of catalysts which comprises forming mixture of hydrogels of silica, alumina and zirconia, drying, treating dried mixture with gas comprising chlorine and reducing agent to form aluminum and zirconium chlorides. No. 2,384,337. Herman Pines and Vladimir Ipatieff to Universal Oil Products Co.

Obtaining cuprous halide from solution containing cuprous halide together with a hydro-halide of compound from ammonia and amines. No. 2,384,361. James Amos to The Dow Chemical Co.

Separation of sulphur dioxide and low-boiling hydrocarbons from mixtures thereof. No. 2,384,378. George Hooker and Franc Landee to The Dow Chemical Co.

Production of zirconia which comprises hyrolyzing solution of zirconium sulphate containing no excess acid and free from alkali metal salts, in presence of compound selected from calcium chloride and calcium nitrate. No. 2,384,428. Mojzesz Axt to F. W. Berk and Co. Ltd.

Producing anhydrous magnesium chloride which comprises reacting magnesium oxide, in strong, porous, coherent pieces formed by heating magnesium concentrates to incipient fusion of impurities therein, with chlorine gas in presence of coke. No. 2,384,479. Robert Lepsoe, Gerald Ortner, and John Salter, to The Mathieson Alkali Works, Inc.

Dielectric body having high dielectric constant comprising base having coating of titanium dioxide particles, said particles having a higher dielectric constant along one axis than along another axis. No. 2,384,541. Hal Fruth to Western Electric Co. Inc.

Preparing magnesium silicate of definite chemical composition with molec-

* *Continued from Vol. 578, Nos. 1, 2, 3, 4.*

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ular ration, $MgO:SiO_2$, within range of 1:3.1-1:4.3, comprising: reacting solution of magnesium sulfate with solution of sodium silicate having formula Na_2O, $3.3SiO_2$. No. 2,384,563. Reuben Roseman and Harry Eisenberg to Charles H. Budton.

Preparing thixotropic gel of magnesium silicate. No. 2,384,564. Reuben Roseman and Harry Eisenberg to Charles Burton.

Preparing chromium oxide catalyst which comprises reacting soluble dichromate salt of sodium, potassium, and ammonium dichromate and a sulfite from sodium, potassium, and ammonium sulfite to reduce dichromate to chromium oxide as a dark gelatinous precipitate. No. 2,384,737. Fritz Haas to Rohm & Haas Co.

Manufacturing phosphoric acid, comprising submerging in aqueous sulfuric acid leaching medium a quiescent bed containing preformed superphosphate granules for diffusion of said medium throughout depth of bed and to form phosphoric acid and calcium sulphate, and withdrawing from bottom of bed phosphoric acid dissolved in aqueous medium. No. 2,384,773. Mark Shoeld to The Davison Chemical Corp.

Manufacture of pure phosphoric acid. No. 2,384,813. John Coleman to Southern Phosphate Corp.

Producing an acid metaphosphate. No. 2,384,814. John Coleman to Southern Phosphate Corp.

Manufacture of crude phosphoric acid. No. 2,384,856. Hugh Ten Eyck and John Chocholak and John Coleman to Southern Phosphate Corp.

Producing sulphur from hydrogen sulphide. No. 2,384,926. Minor Jones to Standard Oil Development Co.

Preparing smooth surfaced catalyst particles having shell of hard dry gel surrounding a core. No. 2,384,944. Milton Marisic to Socony-Vacuum Oil Co.

Making spheroidal particles of inorganic oxide gels modified by inclusion of substances forming discontinuities in gel mass. No. 2,384,945. Milton Marisic to Socony-Vacuum Oil Co. Inc.

Forming inorganic oxide pellets having adsorbent and catalytic properties. No. 2,384,946. Milton Marisic to Socony-Vacuum Oil Co. Inc.

Producing cuprous oxide comprising heating cupric oxide in neutral atmosphere with sulfur and carbon. No. 2,385,066. Arthur Du Rose and Charles Robison to The Harshaw Chemical Co.

Producing cuprous oxide from cupric oxide which comprises heating mixture of cupric oxide and reducing agent of sulfur or copper sulfide and mixtures thereof. No. 2,385,078. William Harshaw and Carl Harbert to The Harshaw Chemical Co.

Producing sodium ferric pyrophosphate which comprises preparing aqueous solution containing tetrasodium pyrophosphate, treating solution with sulfur dioxide to lower pH from 9.0 to 9.5, and then mixing treated solution with aqueous solution of ferric chloride. No. 2,385,188. Charles Booth to Monsanto Chemical Co.

Forming spheroidal particles of inorganic oxide gel containing silica, which comprises flowing together and mixing stream of sodium silicate and stream of acid solution to form a clear hydrosol free of gelatinous precipitate and capable of setting to a hydrogel, etc. No. 2,385,217. Milton Marisic to Socony-Vacuum Oil Co.

Preparing aggregate suspensions having high percentage of colloidal particles from carbonates of large size particles for deposition by electrophoresis on filamentary wire of small diameter, which comprises grinding crystalline barium and strontium carbonates for 100 to 200 hours in dispersing medium of vacuum distilled ethylene glycol, etc. No. 2,385,313. Elmer Thurber and Leland Wooten to Bell Telephone Laboratories, Inc.

Solid water-soluble iodine composition including: a solid un-ionized acid salt of glycine; free or elemental iodine; and ;a solid un-ionized iodide salt selected from alkali metal and alkaline-earth metal iodides; said composition being characterized by ability to hold free iodine in solution when solid composition is dissolved in water. No. 2,385,394. Paul Witte to Tyler Laboratories, Inc.

Production of anhydrous metallic halides whose temperatures of vaporization are 100° F. below melting points of their respective constituent metals by direct reaction of solid metals with halogen gases. No. 2,385,505. Robert Grimble to Socony-Vacuum Oil Co. Inc.

Concentrating and purifying iodine used as catalyst in dehydration of polyhydroxy compounds. No. 2,385,483. Harold Wolff to Shell Development Co.

Decolorizing sulphur discolored with organic matter which comprises contacting, in molten condition, with finely divided solid material, adding conc. sulphuric acid, etc. No. 2,385,527. Arthur Menefee and Herbert Greger.

Producing and vaporizing arsenous oxide by igniting mixture of fast-burning chemicals, which in turn initiates reaction between arsenous oxide and powdered aluminum thus producing arsenic which is oxidized to arsenous oxide upon contact with the air and thus acts as insecticide. No. 2,385,636. William McLain, Frank Miller, and Edwin Green.

Method wherein sulphur dioxide is separated by extraction from mixture comprising same, contacting mixture with liquid extractant consisting of hydrothiophene dioxide. No. 2,385,704. George Hooker, Stephen Stowe and Lewis Drake to The Dow Chemical Co.

Amidophosphates. No. 2,385,713. Gennady Kosolapoff to Monsanto Chemical Co.

*Medicinal

Manufacture of 2-methyl-4-ethoxymethyl-5-cyano-6-hydroxy-pyridine, comprising reacting 2-amino-4-oxo-5-ethoxy-pentene (2) with malonic acid dinitrile. No. 2,384,136. Otto Schnider to Hoffman-La Roche, Inc.

Manufacture of 2-methyl-4-alkoxy methyl-5-cyano-6-hydroxy-pyridine, comprising reacting 2-amino-4-oxo-5-alkoxy-pentene-(2) with cyanoacetamide. No. 2,384,137. Otto Schnider to Hoffmann-La Roche, Inc.

Sulphanilylaminohydantoin. No. 2,384,964. George Raiziss, Le Roy Clemence and Morris Freifelder to Abbott Laboratories.

Increasing and sustaining egg production of fowls comprising feeding iodinated protein having 3 per cent the potency of synthetic thyroxine. No. 2,385,117. Charles Turner and Ezra Reineke to American Dairies Inc., and The Quaker Oats Co.

2-(p-aminobenzenesulpnonamido)-4-methyl-5-carbeth-oxythiazole. No. 2,385,224. George Newbery to Merck & Co. Inc.

Therapeutic-anesthetic preparation, an addition product of alkyl ester of amino-benzoic acid and sulfonamide compound from sulfanilamide, sulfapyridine, sulfathiazole and sulfadiazine, dissolved in glycerine. No. 2,385,262. David Curtis.

Production of erythrina alkaloids. No. 2,385,266. Karl Folkers and Randolph Major to Merck & Co. Inc.

Antihypoprothrombinemia salicylic acid preparation, comprising a salicylic acid compound, and a vitamin K compound. No. 2,385,365. Karl Link to Wisconsin Alumni Research Foundation.

Preparing concentrated toxoids for densensitizing joints and joint tissues of rheumatoid, osteo or mixed arthritic patients, which comprises selecting from strains of hemolytic streptococci a strain which exhibits ability to produce non-suppurative arthritis in rabbits or mice, etc. No. 2,385,443. Josef Hoffmann.

Monoalkyl ethers of diethyl stilboestrol. No. 2,385,468. Ebenezer Reid to Wallace & Tiernan Products, Inc.

Monoalkyl ethers of hexestrol and method of producing same. No. 2,385,472. Franz Schmelkes to Wallace & Tiernan Products, Inc.

*Metallurgy, Ores

Permanent magnet steel comprising cobalt, molybdenum, tungsten, chromium, carbon and silicon, manganese, and iron. No. 2,383,969. David Howerton to Western Electric Co. Inc.

Removal and recovery of metallic constituents of class of molybdenum, vanadium, nickel and zinc from petroleum oils, and production of higher and lower boiling petroleum oil constituents by cracking. No. 2,383,972. Minor Jones to Standard Oil Development Co.

Alloy which consists of silver from 44% to 47½%, copper, and zinc and cadmium. No. 2,383,976. Robert Leach to Handy & Harman.

Making articles from metal powder, portion of which is magnetic which comprises placing powder in mold cavity, subjecting powder to magnetic field to align metal particles in predetermined position, thereafter subjecting powder to mechanical vibration to compact particles, heating, and pressing heated powder in mold cavity. No. 2,384,215. Harry Toulmin, Jr. to H-P-M Development Corp.

Refinement of copper base alloy comprising submergence in molten mass of such alloy of a refractory container open at one end and holding charge of stannous chloride, etc. No. 2,384,256. Alfred Murphy and Geoffrey Callis to J. Stone & Co. Ltd.

Treating white cast iron containing manganese and having a microstructure containing austenite and carbide. No. 2,384,261. Alfred Robiette and Peter Hancock.

Electro-depositing zinc from undivided cell containing aqueous electrolyte consisting of a soluble salt of zinc and alkyl hydrocarbon diamine, and manifesting pH value between 8 and 12. No. 2,384,300. Charles Harford to Arthur D. Little, Inc.

Electro-depositing tungsten from undivided cell containing aqueous electrolyte consisting of tungsten ions and alkyl hydrocarbon diamine and a pH value above 7.0. No. 2,384,301. **Charles Harford to Arthur D.** Little, Inc.

Manufacture of wire consisting of beryllium-copper alloy. No. 2,384,351. George Slagle to Berks County Trust Co.

Light magnesium alloy having resistance to corrosion from sea-water, which contains manganese, calcium, misch metal free of cerium and magnesium. No. 2,384,370. Charles de Rohden.

Permanent magnet made of hot worked alloy comprising cobalt, aluminum, titanium, and balance iron. No. 2,384,450. Clarence Bieber to The International Nickel Co., Inc.

Inhibitor for pickling ferrous metals comprising nonoxidizing acid pickling solution and condensation product of formaldehyde with reaction product of hydrogen sulfide and a guanidine. No. 2,384,467. William Hill to American Cyanamid Co.

Preparing platinum metal catalysts, comprising alloying platinum metal with base metal, and removing base metal from alloy, whereby is produced finely divided platinum metal of high catalytic activity. No. 2,384,501. Johann Streicher to The American Platinum Works.

Alloy steel of good corrosion resisting properties, good machining characteristics and good resistance to impact, comprising chromium, sulphur, nickel, nitrogen, with maximum carbon content of .20%, and iron. No. 2,384,565. Henry Schaufus to Rustless Iron and Steel Corp.

Producing bars, rods, wire, plate, sheet of good machinability and high impact strength of alloy steel containing chromium, sulphur and iron, which consists in including in the composition, nickel, etc. No. 2,384,566. Henry Schaufus to Rustless Iron and Steel Corp.

Production of hot-worked alloy steel semi-converted products, of good machining characteristics, comprising chromium, sulphur, with maximum of .20% carbon and remainder iron, the art which includes assuring high impact strength by including in the composition, nickel and nitrogen. No. 2,384,567. Henry Schaufus to Rustless Iron and Steel Corp.

Recovering indium from indium-bearing material containing zinc in acid-soluble form and further containing impurities including iron, aluminum and arsenic. No. 2,384,610. Homer Doran and Meryl Jackson and Alfred Alf to Anaconda Copper Mining Co.

Apparatus for electrolytic galvanizing of sheets. No. 2,384,660. Clemson Ward to Bethlehem Steel Co.

Beneficiating phosphate ore by flotation of a silica containing concentrate therefrom. No. 2,384,825. Edward Ellis to Southern Phosphate Corp.

Making metallic magnesium by electrolysis in ferrous metal vessel of a fused salt bath comprising magnesium chloride, which comprises introducing into vessel compound selected from boric acid and its alkali- and alkaline-earth-metal salts. No. 2,384,835. Joseph Hanawalt and T. Melville Hess to The Dow Chemical Co.

Apparatus for reduction of manganese ores with carbon comprising elongated heating conduit having horizontal straight line axis, etc. No. 2,384,862. Elmer Wanamaker, Robert Cromwell, and Harold Chamberlain to Electro Manganese Corp.

Apparatus for reducing metallic oxide ores to pure metallic powder, consisting of a closed retort, means for mixing pulverized ore and hydrocarbon gas, etc. No. 2,384,971. John Silvasy and Louis Taylor.

Beneficiating oxidized iron ores by froth flotation which comprises subjecting ore to froth flotation in presence of collector containing as collecting constituent sulfonated talloel including acid substance. No. 2,385,054. Robert Booth and Earl Herkenhoff to American Cyanamid Co.

Beneficiating ores containing carbonates by sink and float process, which comprises subjecting fragments of ore to action of medium comprising aqueous suspension of finely divided ferrosilicon, etc. No. 2,385,079. Norman Hedley and John Kress to American Cyanamid Co.

Apparatus for producing metal bodies by subjecting raw materials of desired metal to discharge of electric current through a gap, etc. No. 2,385,136. Robert Hopkins to The M. W. Kellogg Co.

Electrolytically extracting metal, which has two or more valences, from ore, compound or mixture in which metal appears in a high valence form. No. 2,385,269. Alfred Globus, eleven and one-ninth per cent to Otto Henry, eleven and one-ninth per cent to James Hartley, and eleven and one-ninth per cent to H. Dorsey Spencer.

Zinc base alloys having aluminum, silver, and zinc. No. 2,385,496. Edward Bunn to Revere Copper and Brass, Inc.

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Zinc base alloys having copper, silver, aluminum, and metal of group consisting of manganese, iron, nickel and cobalt, and zinc. No. 2,385,497. Edward Runn to Revere Copper and Brass, Inc.

Reducing tendency to burn of a magnesium base alloy in molten state, which comprises incorporating in alloy while molten, lithium. No. 2,385,685. Robert Busk to The Dow Chemical Co.

Magnesium base alloy containing potassium, said alloy being characterized by reduced tendency to burn. No. 2,385,686. Robert Busk to The Dow Chemical Co.

*Organic

Production of enol acetates by condensation of ketene with ketones. No. 2,383,965. Bernard Gwynn and Edward Degering to Purdue Research Foundation.

Forming formaldehyde from methane comprising burning methane in excess of air with elongated flame and continuously quenching tip of flame. No. 2,384,028. John Hall.

Preparation of 1,2-dinitroethane which comprises adding pure ethylene to pure liquid nitrogen tetroxide. No. 2,384,047. Arthur Smith to Imperial Chemical Industries Ltd.

Preparation of alpha-nitro-isobutene which comprises reacting dinitroisobutane with aliphatic alcohol. No. 2,384,050. Arthur Smith, Charles Scaife and Robert Stanley to Imperial Chemical Industries Ltd.

Production of acetaldehyde from ethyl alcohol by partial oxidation. No. 2,384,066. Frederick Balcar to U. S. Industrial Chemicals, Inc.

Diester of N-alkylidene bis (carbamic acid) and a monohydric unsaturated alcohol. No. 2,384,074. Albert Chenicek to Pittsburgh Plate Glass Co.

Dialkoxy propionitriles containing in alpha position a substituent from alkyl and alkoxy radicals. No. 2,384,106. Joy Lichty to Wingfoot Corp.

Producing 1,3-butadiene by dehydration of 1,3-butylene glycol. No. 2,384,108. Arthur Lorch to Air Reduction Co., Inc.

Ethylene glycol bis (alkenyl carbonate) wherein alkenyl radical contains olefinic linkage between second and third carbon atoms from carbonate radical. No. 2,384,115. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Neutral ester of (A) carbonic acid and (B) a monohydroxy ester of (a) a monohydroxy aromatic carboxylic acid and (b) a monohydric alcohol. No. 2,384,116. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Neutral ester of (A) a polybasic acid and (B) a monohydroxy ester of (a) aliphatic monohydroxy carboxylic acid and (b) a monohydric alcohol. No. 2,384,117. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Neutral ester of (A) an ester of unsaturated monohydric alcohol and lactic acid and (B) a partial ester of carbonic acid and an unsaturated monohydric alcohol. No. 2,384,118. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Neutral ester of a dicarboxylic acid and a half ester of a glycol and a monocarboxylic acid. No. 2,384,119. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Neutral ester of (A) a monohydroxy ester of (a) a monohydroxy aliphatic monocarboxylic acid and (b) a monohydroxy alcohol and (B) a partial ester of (a) carbonic acid and (b) a monohydroxy alcohol. No. 2,384,120. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Neutral diester of (A) carbonic and (B) a monohydroxy ester of (a) an aliphatic monocarboxylic acid and (b) a monohydric alcohol. No. 2,384,121. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Neutral ester of (A) carbonic acid and (B) a monohydroxy ester of (a) a monohydroxy polycarboxylic acid and (b) a monohydric alcohol. No. 2,384,122. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Unsaturated carbonate esters and polymers thereof. No. 2,384,123. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Unsaturated esters and polymers thereof. No. 2,384,124. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Dipropylene glycol bis (alkenyl carbonate) wherein alkenyl radical contains olefinic bond in aliphatic chain between second and third carbon atoms from carbonate radical. No. 2,384,125. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Unsaturated esters and polymers thereof. No. 2,384,126. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Preparing mixed vinyl carbonate esters which comprises reacting vinyl chloroformate with hydroxy compound of alcohols and phenols. No. 2,384,143. Franklin Strain and Frederick Kung to Pittsburgh Plate Glass Co.

Stabilized furfural comprising unstable furfural containing a modicum of butyramid. No. 2,384,238. Rock Comstock to Bay Chemical Co., Inc.

Cyanometadioxanes. No. 2,384,268. Erving Arundale to Standard Oil Development Co.

Alkylating hydrocarbons, which comprises reacting low-boiling alkylatable hydrocarbon with olefin in presence of liquid concentrated hydrofluoric acid associated with primary monohydric alcohol. No. 2,384,294. Frederick Frey to Phillips Petroleum Co.

Obtaining improved yields of alkylated aromatic hydrocarbons from olefins and impure aromatic hydrocarbons. No. 2,384,295. Peter Gaylor to Standard Oil Development Co.

Cardanoxy alkanol, aliphatic-ether-alcohol derivative of cashew nut shell oil. No. 2,384,323. Rush McCleary to The Texas Co.

Manufacture of unsaturated ketones of cyclopentano polyhydrophenanthrene series from corresponding unsaturated secondary alcohols, which comprises subjecting such alcohol to excess of compound from aldehydes and ketones in presence of tertiary aluminum butylate. No. 2,384,335. Rupert Oppenauer.

Reaction products of an aldehyde and a triazole derivative. No. 2,384,369. Gaetano D'Alelio to General Electric Co.

Recovery of pure glacial acetic acid from acetic acid concentrate wherein latter is treated with compound selected from basic nitrogen compounds having at least 2 hydrogen atoms linked with nitrogen and salts of such basic nitrogen compounds and weak acids. No. 2,384,374. Robert Harrison to Cliffs-Dow Chemical Co.

Recovering sulphur dioxide and butadiene from corresponding sulphone. No. 2,384,376. George Hebbard to The Dow Chemical Co.

Manufacturing nitrates of aliphatic alcohols comprising treating alcohols with a mixed acid comprising water-free nitric acid, water-free phosphoric acid and phosphorous pentoxide. No. 2,384,415. Ernst Berl.

Neutralizing residula sulfuric acid in crystalline nitroguanidine, which includes contacting crystals with compound chosen from calcium, barium, strontium, cadmium carbonates, and cadmium hydroxide. No. 2,384,446. Kenneth Ashley to American Cyanamid Co.

Separating azeotropic mixture comprising C^4F^8 and C^2HClF^4 which comprises extracting mixture in liquid phase with mineral oil having naphthenic base, etc. No. 2,384,449. Anthony Benning and Joseph Park to Kinetic Chemicals, Inc.

Producing alkylated aromatic hydrocarbons which comprises subjecting aromatic hydrocarbons and alcohols to contact with composite catalyst comprising precipitated silica and alumina. No. 2,384,505. Charles Thomas and Vladimir Haensel to Universal Oil Products Co.

Isomerization of a 2-alkenyl cyanide to a 1-alkenyl cyanide which comprises contacting 2-alkenyl cyanide in vapor phase with solid catalyst comprising substance selected from alkali and alkaline-earth metal cyanides. No. 2,384,630. John Mahan to Phillips Petroleum Co.

Production of butadiene. No. 2,384,645. Walter Schulze to Phillips Petroleum Co.

Alkylated phenyl-isopropyl-amines and process for the manufacture of same. No. 2,384,700. Otto Schnider to Hoffman-La Roche, Inc.

Reacting methyl hydroxyacetate with vinyl acetate in presence of mercuric phosphate under anhydrous conditions. No. 2,384,726. Donald Coffman to E. I. du Pont de Nemours & Co.

Producing esters by reacting alcohol with organic acid, each of reactants having boiling point higher than temperature used in esterification reaction. No. 2,384,793. Johannes Bruun and John Perrine to Sun Oil Co.

Making alkali metal salt of a tertiary amino carboxylic acid which comprises heating a tertiary amino alcohol containing primary alcohol group with alkali metal hydroxide soluble therein. No. 2,384,816. George Curme, Jr. and Henry Chitwood and Jared Clark to Carbide and Carbon Chemicals Corp.

Making salts of carboxylic acids which comprises heating alcohol containing primary alcohol group with strong alkali to cause liberation of hydrogen mixture and in presence of cadmium catalyst. No. 2,384,817. Henry Chitwood to Carbide and Carbon Chemicals Corp.

Making alkali metal salt of amino carboxylic acid. No. 2,384,818. George Curme, Jr. and Henry Chitwood and Jared Clark to Carbide and Carbon Chemicals Corp.

Octafluorocyclobutane and pyrolytic process for its production. No. 2,384,821. Frederick Downing and Anthony Benning and Robert McHarness to Kinetic Chemicals, Inc.

As new composition, an ester having formula described in patent. No. 2,384,855. Frank Soday to The United Gas Improvements Co.

Acetylthioalkyl ether of cellulose wherein alkyl group contains at least two carbons. No. 2,384,888. William Burke to E. I. du Pont de Nemours & Co.

Alpha-chloroacrylonitrile and method of preparing the same. No. 2,384,889. Albert Clifford and James D'Ianni to Wingfoot Corp.

Separating diolefin from mixture of hydrocarbons containing diolefin and alkyl acetylene, which comprises contacting with sulfuryl chloride solution containing benzoyl peroxide. No. 2,384,902. Egi Fasce to Standard Oil Development Co.

Reacting alkyl aryl ketone with low molecular weight carbonyl group-containing interlinking agent compound selected from aldehydes and ketones with assistance of dehydrating catalyst. No. 2,384,935. Eugene Lieber to Standard Oil Development Co.

Manufacture of styrene and ethylbenzene. No. 2,384,984. Charles Weizmann.

Preventing decomposition of esters of monochlorofumarates, monobromofumarates, monochloromaleates and monobromomaleates which comprises adding activated carbon thereto. No. 2,385,018. Charles Milone to Wingfoot Corp.

Acetylene generator. No. 2,385,087. Jean La Force to Union Carbide and Carbon Corp.

Preparation of nitroethylene which comprises reacting with an alcohol, substance from group 1:2-dinitroethane, beta-nitroethyl nitrate, rapidly distilling off nitroethylene in vapour of alcohol, etc. No. 2,385,111. Arthur Smith, Robert Stanley and Charles Scaife to Imperial Chemical Industries Ltd.

Production of diolefins and vinyl benzenes. No. 2,385,166. Henry Singleton and Thomas McCulloch to Standard Oil Development Co.

Synthesis of ethyl benzene. No. 2,385,187. Forrest Blanding to Standard Oil Development Co.

Separating styrene from mixture thereof with close-boiling aromatic hydrocarbons selected from ethyl benzene and the xylenes wherein mixture is subjected to a binary azeotropic distillation in presence of entrainer comprising ethylene glycol lower alkyl ether, etc. No. 2,385,235. Rolf Schneider to The Lummus Co.

Producing substantial yields of alkyl cyclohexane hydrocarbons which comprises reacting alkyl cyclopentane hydrocarbon and a paraffinic hydrocarbon in presence of alkylating catalyst. No. 2,385,300. Herman Pines and Vladimir Ipatieff to Universal Oil Products Co.

Mono-1-alpha-furyl-substituted aliphatic monosulphonate-1. No. 2,385,314. Jack Thurston to American Cyanamid Co.

Producing acrylonitrile which includes continuously reacting together acetylene and hydrocyanic acid in heated solution of cuprous salt as a catalyst and a solubilizer therefor. No. 2,385,327. Chester Bradley and Harold Davis to American Cyanamid Co.

Converting propane to isobutane which comprises mixing propane in presence of hydrocarbon having boiling point higher than gasoline, with catalyst comprising liquid hydrogen fluoride promoted by boron trifluoride. No. 2,385,344. Robert Burk to The Standard Oil Co.

Producing organic thiazyl disulphide which consists in treating aqueous solution of salt selected from alkali salt of a mercaptothiazole and alkaline earth metal salt of a mercaptothiazole by passing electric current through said solution. No. 2,385,410. John Gardner to Monsanto Chemicals Ltd.

Obtaining high yields of secondary mono-chlorides of neohexane, which comprises contacting neohexane with chlorine in presence of light. No. 2,385,444. Aaron Horton to Socony-Vacuum Oil Co. Inc.

Producing acrylonitrile which includes continuously reacting together hydrocyanic acid and acetylene in heated solution of acid reacting cuprous salt as catalyst, in presence of solubilizer for catalyst. No. 2,385,469. Donovan Salley to American Cyanamid Co.

Production of acrylonitrile which comprises continuously charging acid reacting catalyst containing aqueous solution of cuprous salt and solubilizer therefor with hydrocyanic acid and acetylene, etc. No. 2,385,470. Donovan Salley, Chester Bradley and Harold Davis to American Cyanamid Co.

Production of granular hexachlorethane. No. 2,385,475. James Sconce,

* *Continued from Vol. 578, Nos. 1, 2, 3, 4.*

John Rucker, Stuart Whitmire and William Schoonover to Hooker Electrochemical Co.

Production of butadiene which comprises contacting normal butylene in presence of steam with catalyst comprising dehydrogenating oxide of iron promoted with rubidium. No. 2,385,484. Kenneth Wright to Shell Development Co.

Recovering water insoluble primary aromatic amines from mixture of amine and iron sludge resulting from reduction of corresponding nitro compound with iron which comprises adding a water soluble salt and a water immiscible, inert solvent for the amine. No. 2,385,504. John Goulding to American Cyanamid Co.

Production of succinic and maleic acids from butyrolactone. No. 2,385,518. Robert Isham to Danciger Oil & Refineries, Inc.

Transfer of alkyl substituent groups from polyalkylated aromatic hydrocarbon to a non-alkylated aromatic hydrocarbon. No. 2,385,524. William Mattox to Universal Oil Products Co.

Production of cyclohexane from hydrocarbon mixture comprising open chain hexanes and methylcyclopentane. No. 2,385,543. William Ross and Philip Pezzaglia to Shell Development Co.

Continuous process for preparation of acetylenic alcohols. No. 2,385,546. Everet Smith to Commercial Solvents Corp.

Preparation of acetylenic alcohols. No. 2,385,547. Everet Smith to Commercial Solvents Corp.

Preparation of acetylenic alcohols. No. 2,385,548. Everet Smith to Commercial Solvents Corp.

Production of acrylonitrile. No. 2,385,549. Le Roy Spence to Rohm & Haas Co.

Production of unsaturated nitriles which comprises heating in presence of catalytic amount of aliphatic amine hydrohalide, saturated, halogenated aliphatic nitriles from group consisting of alpha-haloisobutyronitrile, alpha, beta-dihaloisobutyronitrile, alpha, beta-dihalopropionitrile, and alpha, alpha,beta-trihaloproprionitrile. No. 2,385,550. Le Roy Spence to Rohm & Haas Co.

Making acrylonitrile which comprises reacting acetylene and hydrogen cyanide in vapor phase in presence of catalytic agent containing metal from cadmium, magnesium, and zinc. No. 2,385,551. Le Roy Spence, Darrel Butterbaugh and Edwin Kroeker to Rohm & Haas Co.

Production of aliphatic nitrile having an alpha-beta olefinic linkage which comprises passing corresponding saturated nitrile through reaction zone which contains catalyst comprising dark vitreous oxide of metal from chromium and vanadium. No. 2,385,552. Le Roy Spence and Fritz Haas to Rohm & Haas Co.

Two-stage process of producing benzyl ether of dextran which is soluble in solvent selected from acetone cellosolve, dioxane, ethyl acetate, diacetone, mesityl oxide and chloroform. No. 2,385,553. Grant Stahly and Warner Carlson to Chemical Developments Corp.

Manufacture of cyclohexene from cyclohexane. No. 2,385,555. Hervey Voge to Shell Development Co.

Recovery of toluene from complex hydrocarbon mixture containing toluene and non-aromatic hydrocarbons not separable from toluene by conventional distillation, which comprises fractionally distilling hydrocarbon mixture with nitroparaffin. No. 2,385,610. Charles Clark to Allied Chemical & Dye Corp.

Making divinyl-benzene, which consists in heating diethyl-benzene for time insufficient to cause substantial carbonization, whereby ethyl-vinyl-benzene is formed, and thereafter heating it for time insufficient to cause substantial carbonization, whereby it is further dehydrogenated to form divinyl-benzene. No. 2,385,696. Robert Dreisbach to The Dow Chemical Co.

Amine salts of nitrated phenolic compounds and method of preparing the same. No. 2,385,719. Vartkes Migrdichian to American Cyanamid Co.

Production of nitriles, which comprises reacting olefine with anhydrous hydrocyanic acid in presence of catalyst in form of dispersed metal which is reducible from its compounds by means of hydrogen. No. 2,385,741. John Teter to Sinclair Refining Co.

*Paints, Pigments

Preparing non-livering iron oxide pigment preparation which is transparent in thin layer, comprising mixing wet colloidally subdivided precipitate of ferric hydroxide with aqueous emulsion of alkyd resin dissolved in water-immiscible volatile organic solvent to form colloidal dispersion, and subjecting resulting dispersion to azeotropic distillation. No. 2,384,579. Vincent Vesce to Harmon Color Works, Inc.

Treatment of pigment comprising artificially prepared calcium carbonate to modify characteristics thereof, which consists in submitting said pigment to compressing means to effect change in properties of pigment including reduction of its oil absorption and of its adhesive requirement. No. 2,385,379. Harold Rafton to Raffold Process Corp.

Solvent-thinned bituminous paint composition adapted for application to produce fire-resistant bituminous coating. No. 2,385,437. George Fasold and Harold Greider to The Philip Carey Manufacturing Co.

Determining suitability of pigment for a coating composition containing water-soluble urea-formaldehyde condensation product capable of becoming water-insoluble in acid-reacting medium. No. 2,385,560. John Wise to United States Gypsum Co.

Duplicating ink characterized by rapid drying upon application to impression sheet comprising alkyl glycol, a water-soluble resin soap dissolved therein, and a pigment. No. 2,385,613. Alex Davis to A. B. Dick Co.

Fluorescent sulphide pigment in finely divided form, particles having nonvolatile surface coating of cation active wetting agent having property of inhibiting effect of moisture upon said particles, said agent comprising non-volatile amine. No. 2,385,615. John Dreyer to The Formica Insulation Co.

*Petroleum

Sulfurized hydrocarbon oil containing no corrosive halogen compound and susceptible to odor development and an alkylolamine chosen from 2-amino-2-methyl-1-propanol; 2-aminobutanol, etc., to inhibit odor development. No. 2,384,146. Joseph Wallace and Thomas Sharp to Standard Oil Co.

Method of and means for desalting petroleum well fluids. No. 2,384,222. Jay Walker, forty per cent to Guy Marchant and six per cent to C. G. Wells.

Cracking crude hydrocarbon oils in presence of active catalyst wherein oil contains objectionable nitrogenous base impurities which comprises passing oil through adsorptive material consisting of aluminum oxide. No. 2,384,315. Paul Kuhl to Standard Oil Development Co.

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Hydrocarbon conversion process which comprises treating olefinic gasoline with phosphoric acid catalyst to produce light gasoline fraction of low bromine number and heavy olefinic fraction of higher bromine number, etc. No. 2,384,339. Davis Read, Jr. to Universal Oil Products Co.

Catalytically cracking hydrocarbon oils to form lower-boiling products suitable for motor fuels. No. 2,384,356. Charles Tyson to Standard Oil Development Co.

Removing olefins from hydrocarbon material containing low-boiling olefin and paraffin hydrocarbons. No. 2,384,735. Frederick Frey to Phillips Petroleum Co.

Alkylation with gaseous olefinic material. No. 2,384,736. Frederick Frey to Phillips Petroleum Co.

Making motor fuel of high knock rating which comprises subjecting mixture of isoparaffin hydrocarbon and normally gaseous olefin to phosphoric acid catalyst and introducing methanol into reaction. No. 2,384,796. Don Carmody and Bernard Shoemaker to Standard Oil Co.

Forming stable liquid fuels comprising extracting unsaturates from cracked hydrocarbon distillate to product extract and raffinate, etc. No. 2,384,866. Sol Wiczer.

Converting higher boiling crude mineral oil fractions into hydrocarbons boiling within gasoline range comprising subjecting fractions to cracking in presence of alkyl ester of an oxygen-containing acid of phosphorus. No. 2,384,877. Richmond Bell and Carlisle Thacker to The Pure Oil Co.

Producing white oils comprising subjecting paraffinic petroleum stock to successive treatments with sulfuric acid, and contacting with clay. No. 2,384,905. Clyde Floyd and Julius Fram to Standard Oil Development Co.

Conversion of hydrocarbons in presence of a particle form solid contact mass material. No. 2,384,932. Charles Lechthaler to Socony-Vacuum Oil Co. Inc.

Manufacture of valuable hydrocarbon products by contacting reactants containing carbon and hydrogen with hard homogeneous porous dried particles of gel bounded by smooth hard glossy surfaces consisting of smooth curves and characterized by high resistance to attrition loss. No. 2,384,942. Milton Marisic to Socony-Vacuum Oil Co. Inc.

Manufacture of valuable hydrocarbon products by conversion of heavier hydrocarbon reactants in contact with inorganic synthetic gel conversion catalyst containing silica and a metal oxide. No. 2,384,943. Milton Marisic to Socony-Vacuum Oil Co. Inc.

Recovering catalyst from oil slurry which comprises mixing slurry containing 0.25 to 2 lbs. of powdered catalyst per gallon of oil with water, etc. No. 2,384,967. Frederick Schumacher and Robert Ferguson to Standard Oil Development Co.

Reacting ethylene with a saturated tertiary hydrocarbon. No. 2,385,123. George Atkins, Jr. to Standard Oil Development Co.

Alkylating isoparaffins with olefins in presence of a suitable catalyst. No. 2,385,133. Gilmore Gwin to Standard Oil Development Co.

Inhibiting corrosiveness of liquid hydrocarbon fuel stock of gasoline to Diesel fuel boiling range normally corrosive to metals, which comprises adding oil-soluble alkylated oxy-aryl sulfide. No. 2,385,158. Henry Paulsen to Standard Oil Development Co.

Cracking of hydrocarbon oils. No. 2,385,216. Joseph Marancik and Homer Martin to Standard Oil Development Co.

Preparing aliphatic hydrocarbon product of motor fuel boiling range from a C4 hydrocarbon mixture containing n-butylenes and isobutylene. No. 2,385,237. Eldon Stahly and Frank Johnson to Standard Oil Development Co.

Producing alkylated aromatics which comprises contacting olefin under alkylating conditions with clear solution of aromatic hydrocarbon having aluminum halide dissolved therein with aid of nitroparaffin solutizer. No. 2,385,303. Louis Schmerling to Universal Oil Products Co.

Production of useful products including gasoline and fuel oil from petroleum, comprising separating petroleum by distillation into a gasoline fraction, a light naphtha fraction, a heavy reflux condensate, and a reduced crude. No. 2,385,325. William Bailey, Jr. to Shell Development Co.

Catalytic conversion of hydrocarbon oils heavier than gasoline into useful normally liquid and normally gaseous products including gasoline, beta butylene and isobutane-olefin mixture for production of quality alkylate. No. 2,385,326. William Bailey, Jr. to Shell Development Co.

Refining of hydrocarbon oil with metallic sodium. No. 2,385,431. Richard Vose to Sun Oil Co.

Separation of hydrocarbon mixture into fractions of different types which comprises extracting mixture with selective solvent comprising a thioether in which carboxylic acid group is substituted for hydrogen atom, and a salt of said substituted thioether as solvent modifying agent, thereby forming raffinate phase and extract phase. No. 2,385,645. Orville Polly and Alva Byrns to Union Oil Co. of California.

Lubricating oil comprising blend of distillation bottoms obtained by reacting olefin with isoparaffin in presence of alkylation catalyst and distilling reaction product. No. 2,385,697. Marcellus Flaxman to Union Oil Co. of California.

Separation of diolefins from hydrocarbon mixtures containing same and boiling in same temperature range, which comprises extracting mixture with compound having formula described in patent. No. 2,385,705. Hal Huffman to Union Oil Co. of California.

*Photographic

Photographic element comprising support bearing water-permeable layer consisting of a hydrophilic synthetic linear polycarbonamide containing recurring intralinear oxygen atoms and recurring intralinear amide groups. No. 2,384,072. Merlin Brubaker to E. I. du Pont de Nemours & Co.

Photographic template comprising metal base primed with oleaginous primer and having superimposed thereon a cement, a photosensitive emulsion, paper and a gas impervious coating. No. 2,384,093. Reynold Holmen and Ronald McGlone to E. I. du Pont de Nemours & Co.

Cabinet for development of sensitized prints by means of gas. No. 2,384,155. Harold Brunk to The C. F. Pease Co.

Single-powder photographic developer composition, containing organic developing agent; a soluble, stable and photographically compatible basic ingredient selected from alkali borates, carbonates, sesquicarbonates, and phosphates; and phthalic anhydride. No. 2,384,592. Frederic Bean to Eastman Kodak Co.

Photographic developer containing silver halide developing agent and a fog inhibiting amount of alkali-metal salt of 6-nitrobenzimidazole. No. 2,384,593. Frederic Bean to Eastman Kodak Co.

Preparing a photographic printing material for production of images of different contrast under same conditions of development comprising dividing batch of one photographic silver halide emulsion into two por-

tions of unequal volume, sensitizing smaller portion with sensitizing dye which does not wander from silver halide grains so that two portions of emulsion are sensitized to different spectral regions, and then mixing two portions of emulsion together. No. 2,384,598. Burt Carroll to Eastman Kodak Co.

Gelatino-silver halide emulsion containing fog-inhibiting amount of a chloroaniline containing only one amino group and free of hydroxyl groups. No. 2,384,613. George Fallesen to Eastman Kodak Co.

Photo tissue consisting of absorbent paper sheet, characterized by high wet strength and high water absorbency, having distributed therein stable, resinous, water-soluble polymeric reaction product of polyhydric alcohol and boric acid, and water-dispersible paper-sizing material, which paper sheet has photo-sensitive gelatin layer thereon. No. 2,384,632. Kenneth MacKenzie and Robert Bryce to Eastman Kodak Co.

Manufacturing photographic film free of static which comprises placing electrically conducting border along selvage of roll of film base, then coating and drying photosensitive layer onto surface of base and trimming off conducting selvages. No. 2,384,657. Rayen Tyler to Eastman Kodak Co.

Preventing discoloration of photographic layers containing dye images selected from indophenol, indamine, and azomethine dyes. No. 2,384,658. Paul Vittum to Eastman Kodak Co.

Photographic developing solution having reduced tendency toward aerial oxidation, comprising developing agent and a compound selected from dihydroxy tartaric acid, dinitro tartaric acid, and salts, esters and amides of said acids. No. 2,384,663. Arnold Weissberger and Paul Vittum to Eastman Kodak Co.

Photographic tone correction mask. No. 2,384,665. Franklin Williams and Howard Ott to Eastman Kodak Co.

Producing plate for ink and dye printing, which includes providing carrier with toothed or grained surface, applying thin film of photo-sensitive silver emulsion, etc. No. 2,384,857. Bennett Terry.

Producing developed silver pictures in blue tones from silver bromide emulsions, which comprises developing emulsions in presence of organic compound of formula described in patent. No. 2,384,897. Fritz Dersch and Newton Heimbach to General Aniline & Film Corp.

Color photography. No. 2,385,599. Joseph Ball and Lawrence Plotin to Max McGraw, as McGraw Colorgraph Co.

Photographic material comprising silver-halide gelatin emulsion in contact with member of group of a sulfinic acid, a seleninic acid and their salts, and an organic sulfide compound selected from aryl-substituted diamino and N-heterocyclic mono- and polysulfides. No. 2,385,762. Fritz Mueller to General Aniline & Film Corp.

Photographic developer comprising N-mono alkyl o-amino phenol, and an alkali metal salt of a 2 (di(hydroxyethyl))-amino-1-hydroxy benzene which upon oxidation sets free alkali. No. 2,385,763. Verne Reckmeyer to General Aniline & Film Corp.

*Polymers

Preparing conc. aqueous dispersion of acid reacting synthetic resin prepared by reacting compound of acidic character containing a -CO-C-C group with a substance selected from compounds containing a conjugated double bond or capable of forming a conjugated double bond upon being heated. No. 2,383,933. Albert Bump to Monsanto Chemical Co.

Colored emulsion, capable of coloring flexible materials such as fabrics and fibers, which comprises water-in-oil type of emulsion, oil phase of which comprises organic solvent containing water-insoluble, organic, film-forming, thermo-setting material, together with elastomer. No. 2,383,937. Roy Kienle and Alfred Peiker to American Cyanamid Co.

Thermosetting composition for molded articles comprising synthetic resin base including alpha phase phenol furfuraldehyde, calcium stearate, and filler material including lignin, cotton floc, and cotton fabric waste, and polychloroprene. No. 2,384,015. Le Grand Daly.

Composition comprising polyvinyl acetal resin and, as softening point elevating agent therefor, an ether of formula described in patent. No. 2,384,034. Charles Johnson to E. I. du Pont de Nemours & Co.

Preparation of polymerised nitroethylene which comprises reacting beta-nitroethyl nitrate in presence of aqueous medium with substance selected from alkali metal carbonate, alkali metal hydroxide, etc. No. 2,384,049. Arthur Smith, Charles Scaife and Robert Stanley to Imperial Chemical Industries Ltd.

Making modified rosin product, which comprises dispersing in rosin compound selected from nitro-compounds and nitroso-compounds, said compound being soluble in rosin and capable of developing inorganic oxygen-containing acid of nitrogen. No. 2,384,061. Laszlo Auer.

Modifying properties of rosin which comprises incorporation in rosin of oxygen containing inorganic acid of nitrogen. No. 2,384,062. Laszlo Auer.

Modifying properties of rosin comprising heating rosin in presence of aromatic amino-compound. No. 2,384,063. Laszlo Auer.

Modified rosin comprising rosin reacted with aromatic mono-primary amino-compound. No. 2,384,064. Laszlo Auer.

Resinous, homopolymeric methyl methacrylate polymer of reduced solution viscosity in 25% solution in toluene having organic thiol milled therein. No. 2,384,070. Elmer Bolton to E. I. du Pont de Nemours & Co.

Subresinous esterification derivatives of hydroxylated acylated diamides and method of making same. No. 2,384,080. Melvin De Groote and Bernhard Keiser to Petrolite Corp. Ltd.

Sub-resinous alcoholic hydroxyls containing diacylated ester-linked acylated derivatives of a basic polyamine. No. 2,384,081. Melvin De Groote and Bernhard Keiser to Petrolite Corp. Ltd.

Forming clear, hard and strong plasticized bodies of styrene-maleic anhydride resin, which comprises admixing styrene, maleic acid and dimethyl phthalate and then subjecting to polymerization to form resin in presence of dissolved plasticizer. No. 2,384,085. Howard Gerhart to Pittsburgh Plate Glass Co.

Refining natural resins containing filterable and non-filterable gelatinous impurities and "wax." No. 2,384,138. Norman Schultze to U. S. Industrial Chemicals, Inc.

Resinous poly-cyclopentadiene containing a secondary aryl amine. No. 2,384,141. Frank Soday to The United Gas Improvement Co.

Thermosetting composition comprising urea-formaldehyde reaction product and a latent curing catalyst having general formula described in patent. No. 2,384,367. David Cordier to Libbey-Owens-Ford Glass Co.

Preparing liquid polymeric dimethyl silicone which comprises reacting dimethyldiethoxy silicane dissolved in ethyl alcohol with water in presence of acid catalyst. No. 2,384,384. Rob McGregor and Earl Warrick to Corning Glass Works.

Imparting strength and resilience to hardened urea-formaldehyde resin foam that comprises reducing volume of foam by compressing at temperature high enough to render foam sufficiently plastic so that it is not disintegrated by compressing operation. No. 2,384,387. Leonard Meyer to Libbey-Owens-Ford Glass Co.

Resinous product of copolymerization of acylic terpene having three double bonds per molecule and material described in patent. No. 2,384,400. Alfred Rummelsburg to Hercules Powder Co.

Producing condensation products, which comprises, reacting pseudothiohydantoin-3 zein with dibasic acid anhydrides. No. 2,384,421. Oskar Huppert.

Manufacturing plastic composition comprising mixing a dihydric alcohol polyester of a polymeric fat acid with rubber compounding agents, heating, and then plasticizing composition by milling. No. 2,384,443. John Cowan and Howard Teeter to the Secretary of Agriculture of the United States of America.

Forming smooth, glass-like, tough and blister-free non-warping articles of thermoplastic materials. No. 2,384,521. Bjorn Andersen and Raymond Strasdin to Celanese Corp. of America.

Butadiene copolymers and method of preparing same. No. 2,384,535. David Craig to The B. F. Goodrich Co.

Polyvinyl acetal resin made with formaldehyde and plasticized with diethylhexyl phthalate. No. 2,384,537. John De Bell and Elmer Derby to Monsanto Chemical Co.

Polyvinyl acetal resin made with formaldehyde and plasticized with diethylene glycol propionate butyrate. No. 2,384,538. John De Bell and Elmer Derby to Monsanto Chemical Co.

Copolymerizing a mixture including conjugated diene of general formula noted in patent. No. 2,384,568. Waldo Semon to The B. F. Goodrich Co.

Copolymers of dienes and olefinic dicarboxylic acid esters. No. 2,384,569. Waldo Semon to The B. F. Goodrich Co.

Polymerizing mixture including a butadiene-1,3 hydrocarbon and neutral organic compound composed of carbon, hydrogen, and oxygen, and containing oxygen-containing structure noted in patent. No. 2,384,572. Waldo Semon to The B. F. Goodrich Co.

Subjecting to emulsion polymerization a mixture comprising three different monomers, one consisting of a butadiene-1,3, another of amide of a monocarboxylic acid having a methylene group attached by olefinic double bond to alpha carbon atom, and the third consisting of unsaturated compound selected from styrene, acrylonitrile, methacrylonitrile, methylacrylate, etc. No. 2,384,574. William Stewart and Benjamin Zwicker to The B. F. Goodrich Co.

Light weight rigid material comprising dried foam containing multiplicity of voids defined by walls including polyvinyl alcohol, asphalt and a hardening agent. No. 2,384,611. Orin Douthett to Barber Asphalt Corp.

Solid solution of resinous polymer of vinyl aromatic compound and hydrogenated resinous polymer of vinyl aromatic compound. No. 2,384,619. Harold Heller to Radio Corp. of America.

Resinous material and process of making, which consists in reacting glycerine and fatty acids selected from drying and semi-drying oil fatty acids until neutral product is formed, and heating with maleic anhydride. No. 2,384,846. Charles Moore to The Glidden Co.

Making dispersions of normally solid polymer from ethylene which comprises dissolving polymer in organic solvent selected from hydrocarbon and chlorinated hydrocarbon solvents. No. 2,384,848. Franklin Peters to E. I. du Pont de Nemours & Co.

Thermoplastic product derived from rubbers which comprises mixing substance selected from natural rubbers, polymers of butadiene-1,3, etc., with organic sulfo phosphine halide. No. 2,384,876. Thomas Bartram to Monsanto Chemical Co.

Thermoplastic composition, ingredients of which are a polymer of vinylidene chloride, and urea formaldehyde resin. No. 2,384,880. Edgar Britton and Harold Moll to The Dow Chemical Co.

Thermoplastic composition, ingredients of which are polymer of vinylidene chloride, and coumarone indene resin. No. 2,384,881. Edgar Britton and Harold Moll to The Dow Chemical Co.

Thermoplastic composition, ingredients of which are polymer of vinylidene chloride, and resin selected from run natural resins and hydrogenated rosin. No. 2,384,882. Edgar Britton and Harold Moll to The Dow Chemical Co.

Thermoplastic composition, ingredients of which are polymer of vinylidene chloride, and toluene sulfonamide-aldehyde resin. No. 2,384,883. Edgar Britton and Harold Moll to The Dow Chemical Co.

Thermoplastic composition, ingredients of which are polymer of vinylidene chloride and polyvinyl-acetal resin. No. 2,384,884. Edgar Britton and Harold Moll to The Dow Chemical Co.

Thermoplastic composition, ingredients of which are (1) a polymer of vinylidene chloride and (2) phenolaldehyde resin modified with natural resins and drying oils. No. 2,384,885. Edgar Britton and Harold Moll to The Dow Chemical Co.

Opaque thermoplastic composition, ingredients of which are polymer of vinylidene chloride, and water insoluble thermoplastic cellulose ether. No. 2,384,886. Edgar Britton to The Dow Chemical Co.

Thermoplastic composition containing polymer of vinylidene chloride and white shellac. No. 2,384,910. Alden Hanson and William Goggin to The Dow Chemical Co.

Producing high molecular weight iso-olefin polymers by polymerization of unsaturated hydrocarbon reactants containing isobutylene and diolefin in presence of Friedel-Crafts halide type catalyst. No. 2,384,916. Robert Holmes to Jasco, Inc.

Thermoplastic composition, ingredients of which are a vinylidene chloride polymer and unmodified phenolformaldehyde resin. No. 2,384,947. Lorne Matheson to The Dow Chemical Co.

Producing emulsion polymerizates of butadienes containing conjugated double bonds which comprises using water soluble salts of olefin sulfonic acids as emulsifying agent in aqueous medium. No. 2,384,969. George Serniuk to Standard Oil Development Co.

Thermoplastic composition comprising: polymeric vinylidene chloride product and polymer of a compound having formula described in patent. No. 2,384,973. Frank Smith to The Dow Chemical Co.

Solid interpolymer of an isoolefin and a nonconjugated diolefin which is reactive with sulfur to give an elastic product. No. 2,384,975. William Sparks and Robert Thomas to Jasco, Inc.

Preparation of polymerised nitroethylene which comprises reacting 1:2-dinitroethane in aqueous medium with substance selected from group: alkali metal carbonate, alkali metal bicarbonate, etc. No. 2,385,037. Arthur Smith to Imperial Chemical Industries Ltd.

Plastic treating processing and curing apparatus. No. 2,385,143. Avrom Charles Levine.

Polymerizing conjugated butadiene hydrocarbon in aqueous emulsion in

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presence of tetra-alkyl thiuram sulfide. No. 2,385,190. George Browning, Jr. to The B. F. Goodrich Co.

*Processes and Methods

High vacuum unobstructed path distillation. No. 2,383,945. Edgar Shantz to Distillation Products, Inc.

Method and apparatus for fluid contact which comprises immersing light flexible porous tube in body of one of fluids to be reacted with one of its ends free for thrashing movement therein, passing another fluid under pressure through tube and controlling escape from tube. No. 2,383,946. Chester Tietig.

In reacting ethylene with liquid nitrogen tetroxide, step of passing oxygen into liquid nitrogen tetroxide during part of reaction period. No. 2,384,048. Arthur Smith and Charles Scaife to Imperial Chemical Industries Ltd.

Separating olefin hydrocarbons from mixture of olefin and paraffin hydrocarbons, which comprises gravitating solid adsorbent material in powdered form through adsorption zone, etc. No. 2,384,311. Kenneth Kearby to Jasco, Inc.

Prevention of copper acetylide precipitation. No. 2,384,329. Charles Morrell and Miller Swaney to Standard Oil Development Co.

Forming hydrogel globules by flowing gelable hydrosol upon apex of a conical divider; which comprises interposing water-immiscible liquid which wets surface of divider between hydrosol and divider. No. 2,384,455. Henry Daley and Jesse Howard, Jr. to Socony-Vacuum Oil Co. Inc.

Removing heat from zone of contact material wherein exothermic regeneration reaction is being carried out. No. 2,384,858. Clarence Thayer and Raymond Lassiat, one-half to Sun Oil Co., and one-half to Houdry Process Corp.

Conducting catalytic reactions in which exothermic heat of reaction is removed and catalyst temperature is controlled by recirculation of large volume of reacting gas mixture. No. 2,384,874. Frank Barr to Standard Catalytic Co.

Producing comminuted material which comprises forming stream of molten material, applying succession of solid streams of liquid having linear motion and transverse motion with respect to stream of molten material to disintegrate end thereof with formation of minute particles, etc. No. 2,384,892. Gregory Comstock to F. W. Berk & Co.

Forming fibrous articles by accretion upon a former in liquid suspension of fibres. No. 2,384,958. Victor Pare to Radio Corp. of America.

Decreasing sulfide sediment corrosion in ferrous metal pipeline carrying stream of liquid hydrocarbons, comprising intermittently injecting into pipeline concentrated aqueous solution of non-oxidizing hydrocarbon-insoluble desulfurizing material. No. 2,385,175. Aaron Wachter and Richard Treseder to Shell Development Co.

Process and apparatus for reacting a gaseous with a liquid reagent to produce gaseous product and liquid product having foaming characteristics. No. 2,385,200. Howard Friedel to Hooker Electrochemical Co.

Recovering fluorine compounds from sinter gases. No. 2,385,208. Otha Jones to Monsanto Chemical Co.

In combination with filter and a housing therefor to segregate filter from external region of different pressure, means forming a filter cake receiving chamber communicating with interior of housing to receive discharge of filter cake of granular material and constrain received material to form a gravity-packed mass. No. 2,385,238. Leon Tarbox to The Lummus Co.

Rapid, low temperature curing polychloroprene composition comprising mixture of uncured polychloroprene, sulfur chloride, volatilizable liquid of alcohols and ketones, and inert volatile organic solvent. No. 2,384,269. Louis Bake to E. I. du Pont de Nemours & Co.

Method of making fine fibers, which includes: continuously conveying through elongated pressure zone a liquid fiber-forming composition capable of adhering to opposed pressure members defining said zone, releasing pressure on liquid to produce a multiplicity of opposed pairs of fiber necks on said opposed pressure members, each of said pairs connected by a single filament, and drawing fibers from necks at a continuously increasing rate. No. 2,385,358. Alden Hanson to The Dow Chemical Co.

Regenerating spent catalyst for reuse in cracking process. No. 2,385,446. Joseph Jewell and George Creelman and Walter Borcherding to The M. W. Kellogg Co.

Colorimetric method for testing for available chlorine which consists of taking aliquot containing approximate gravimetric quantity of chlorine as judged by presumed strength, and, in presence of compatible buffer solution, reacting said chlorine aliquot with solution of definite gravimetric quantity of diamino diphenyl compound to act as color reagent. No. 2,385,471. Harry Scharer.

Recovering solvent from solvent extraction process employing volatile chlorinated hydrocarbon stabilized with water-soluble organic compound containing basic nitrogen atom, the steps of adding water to the residues, etc. No. 2,385,564. William Booth and Richard Cosway to Imperial Chemical Industries Ltd.

*Rubber

Synthetic rubber-like polymeric material obtained by polymerizing, in aqueous emulsion, a mixture of 2-chlorobutadiene-1,3 and N-substituted maleic imide. No. 2,384,239. George Dorough to E. I. du Pont de Nemours & Co.

Making a rubber-like material without incorporation of an antioxidant which comprises emulsifying elastogenic polymerizable material, polymerizing emulsified material until predetermined density is reached, coagulation resulting dispersion of polymer, and washing and drying coagulum. No. 2,384,277. William Calcott and Howard Starkweather to E. I. du Pont de Nemours & Co.

Thermoplastic molding and extrusion composition, ingredients of which are vinylene chloride polymer, and alkyd resin. No. 2,385,256. Edgar Britton and Harold Moll to The Dow Chemical Co.

Polymeric masses comprising polymerized alpha substituted acrylonitrile from class of alpha hydrocarbonoxy, furyl-oxy, and furfuryl-oxy substituted acrylonitriles. No. 2,385,258. Albert Clifford to Wingfoot Corp.

Producing condensation product, which comprises condensing isophorone, maleic anhydride and a primary 1,2 hydroxyalkyl amine. No. 2,385,281. Oskar Huppert.

Condensation product characterized by aromatic nuclei interconnected by atom of element selected from sulfur, selenium and tellurium, each of aromatic nuclei having attached thereto organic aliphatic carboxylic acid group, etc. No. 2,385,301. Orland Reiff to Socony-Vacuum Oil Co. Inc.

Fabricating articles from polymeric vinylidene chloride. No. 2,385,318. Ralph Wiley to The Dow Chemical Co.

Plasticized thermoplastic composition characterized by high degree of flexibility and by high resistance to impact at temperatures as low as —40° C., which includes ethyl cellulose and alkyl ester of acid selected from hydroxy—and acyloxystearic acids. No. 2,385,359. Melvin Hunter and Earle Kropscott to The Dow Chemical Co.

Making a resin characterized by uniform properties comprising forming mixture of a dihydroxy benzene, non-alkaline catalyst, and liquid diluting medium adapted to assist in preventing premature setting-up of reaction product, etc. No. 2,385,370. Arthur Norton to Pennsylvania Coal Products Co.

Producing permanently fusible resin containing as essential ingredient a resorcin-aldehyde resin comprising initiating reaction between resorcin and aldehyde by heating in absence of a catalyst, etc. No. 2,385,372. Philip Rhodes to Pennsylvania Coal Products Co.

Producing permanently fusible resinous mass comprising forming under reflux conditions and in presence of acid catalyst an undehydrated reaction product of a monohydric phenol body with an aldehyde, etc. No. 2,385,373. Philip Rhodes to Pennsylvania Coal Products Co.

Aqueous bonding liquid containing heat-reactive mixture of hexamethylene tetramine and aqueous solution of resinous reaction product of mixture of aldehyde and a dihydroxy benzene. No. 2,385,374. Philip Rhodes to Pennsylvania Coal Products Co.

As plasticizer for cellulose acetate, cellulose aceto proprionate, and like, the resinous reaction product of reactants consisting of sebacic acid, succinic anhydride, ethylene glycol, glycerol, and castor oil. No. 2,385,377. Carl Opp to Interchemical Corp.

Preparing melamine resin and product thereof which comprises reacting formaldehyde with melamine. No. 2,385,383. Paul Schroy to American Cyanamid Co.

Manufacturing thick-centered sheets of organic, polymerized, thermoplastic material which comprises forming cell of two parallel, flat, resilient sheets of material held in spaced relationship and sealed along their perimeters, introducing into cell while in vertical position a fluid, polymerizable material of a density sufficient to cause said sheets to bulge. No. 2,385,486. Willard Bartoe and Walter Speck to Rohm & Haas Co.

Intermediate product for production of printing stencil for use with dye pastes containing strongly corrosive chemicals, which comprises fine textile fabric screen carrying rigidly attached thereto film of material having as major component a vinyl-halide-vinyl-acetate copolymer. No. 2,385,562. Alexander Baczewski.

Manufacture of condensation products from sulphite waste liquor and phenols which comprises reacting mixture consisting of pulverized, dried sulphite waste liquor, a phenol and anhydrous phosphoric acid, continuing reaction until homogenous fluid mass is obtained which solidifies on cooling to resin. No. 2,385,586. Hermann Rudy and Rudolf Watzel.

Polymerizing normally gaseous mixture containing ethylene, propylene and butylene such as may me derived from cracked petroleum, which comprises passing mixture through reactor in contact with catalyst selected from chromites of zinc, copper and cadmium. No. 2,385,609. Alfred Clark and Richard Shutt to Battelle Memorial Institute.

Producing polymeric materials which consists in cleaving with acidic material containing anion of strong acid selected from chlorides of saturated fatty acids, a six-membered heterocyclic ring selected from 4-methyl-1,3-dioxane and 1,3-dioxane, then polymerizing with Friedel-Crafts catalyst, etc. No. 2,385,661. Gordon Vaala and Robert Carlin to E. I. du Pont de Nemours & Co.

Preparing a molded zein article and the resulting article which is insoluble in 80% ethyl alcohol comprising reaction product obtained by heating mixture of zein and gasoline-insoluble fraction of pine wood resin with paraformaldehyde to react with all of said zein and resin. No. 2,385,679. Sara Bers to Armstrong Cork Co.

Zein molding compositions and method of molding comprising filler, and binder including zein and gasoline-insoluble fraction of pine wood resin. No. 2,385,721. Victor Navikas to Armstrong Cork Co.

Hot molding articles from molding material in form of paper carrier containing therein thermoplastic binder, ingredients of which consist of zein and gasoline-insoluble fraction of pine wood resin, etc. No. 2,385,722. Victor Navikas to Armstrong Cork Co.

Synthetic rubberlike materials. No. 2,384,543. Charles Fryling to The B. F. Goodrich Co.

Preparing synthetic rubber which comprises polymerizing mixture containing at least two butadiene-1,3 hydrocarbons and an alpha-methylene nitrile. No. 2,384,544. Charles Fryling to The B. F. Goodrich Co.

Synthetic rubber latex prepared by polymerization in aqueous emulsion of mixture of monomeric butadiene-1,3, monomeric piperylene, and monomeric copolymerizable compound selected from styrene, isobutylene, acrylonitrile, etc. No. 2,384,545. Charles Fryling to The B. F. Goodrich Co.

Preparation of synthetic rubber which comprises polymerizing in aqueous emulsion a mixture containing two different butadiene-1,3 hydrocarbons, one of which is 2,3-dimethyl butadiene-1,3, and nitrile of an alpha-methylene monocarboxylic acid. No. 2,384,546. Charles Fryling to The B. F. Goodrich Co.

Self-sealing fuel hose for aircraft and like, said hose comprising in inside portions to come in contact with fuel and to swell from 25 to 100% by volume therein, a rubbery material prepared by polymerization of a mixture of butadiene-1,3, acrylonitrile, and styrene. No. 2,384,547. Charles Fryling to The B. F. Goodrich Co.

Rubberlike multipolymers containing a conjugated diene hydrocarbon. No. 2,384,570. Waldo Semon to The B. F. Goodrich Co.

Rubberlike multipolymers prepared from mixtures including a conjugated diene hydrocarbon. No. 2,384,571. Waldo Semon to The B. F. Goodrich Co.

Vulcanizable isobutylene-monovinylacetylene synthetic rubber. No. 2,384,731. Clarence Denoon, Jr. to E. I. du Pont de Nemours & Co.

Preparation of synthetic rubberlike substance by polymerization of emulsion of butadiene and a second unsaturate containing a single C=C linkage, adding thereto emulsifying agent comprising a stearate soap and a peroxide catalyst, etc. No. 2,385,172. Byron Vanderbilt and Nathan Beekley, Jr. to Jasco, Inc.

Manufacture of synthetic, rubber-like materials which comprises polymerizing mixture of saponifiable derivative of alpha-chloroacrylic acid and member of group of butadiene-1,3, methyl derivatives of butadiene-1,3, etc. No. 2,385,182. James Anderson and Rowland Hill and Leslie Morgan to Imperial Chemical Industries Ltd.

Accelerator of vulcanization, addition product of carbon bisulfide and 1-(alpha-dimethylaminobenzyl) naphthol-2. No. 2,385,275. Albert Hardman to Wingfoot Corp.

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* Continued from Vol. 578, Nos. 1, 2, 3, 4.

From Official Gazette—Vol. 579, Nos. 1, 2, 3, 4 (Oct. 2-Oct. 23)—p. 630

Rubber-like composition composed of a copolymer of butadiene and acrylonitrile plasticized with isobutyl trichloro propionate. No. 2,385,290. Joy Lichty to Wingfoot Corp.

Vulcanizable rubber composition comprising unvulcanized rubber, sulfur and condensation product of mercaptobenzothiazole, cyanamide and formaldehyde. No. 2,385,335. Russell Dean to American Cyanamid Co.

Oil package which consists of lubricating oil packaged in bag of rubber hydrochloride film plasticized with dimethoxyethyl phthalate to increase its impact strength. No. 2,385,531. Harold Osterhof and La Varne Cheyney to Wingfoot Corp.

Rubber hydrochloride film of high impact strength plasticized with diethoxyethoxyethyl succinate. No. 2,385,532. La Verne Cheyney and Harold Osterhof to Wingfoot Corp.

Bag containing lubricating oil, walls of which are composed of a film of rubber hydrochloride plasticized with sebacate of class consisting of di-2-chloroethyl sebacate and dicyclohexyl sebacate. No. 2,385,533. La Verne Cheyney and Harold Osterhof to Wingfoot Corp.

Bag containing lubricating oil, walls of which consist of a film of rubber hydrochloride of high impact strength, due to plasticization with adipate of class of dimethoxyethyl adipate and diethoxyethoxyethyl adipate. No. 2,385,534. La Verne Cheyney and Harold Osterhof to Wingfoot Corp.

Bag containing lubricating oil, walls of which are composed of rubber hydrochloride film plasticized with di-2-chloroethyl hexahydrophthalate to increase their strength. No. 2,385,535. La Verne Cheyney and Harold Osterhof to Wingfoot Corp.

Coagulating neoprene dispersions by means of magnesium salts. No. 2,385,688. Albert Carter and Thomas Webber to E. I. du Pont de Nemours & Co.

Rubber-like copolymer consisting of lower aliphatic conjugated diolefine, alkyl alpha-methylene-alkyl ketone and alpha-methylene-alkyl cyanide. No. 2,385,695. Robert Dreisbach to The Dow Chemical Co.

Molding rubber-like articles which comprises curing accelerator, mixture of halogenated hydrocarbon having melting point between 20° C. and 153° C. and a fatty oil, and polymeric derivative obtained by polymerizing chloro-2-butadiene-1,3 in presence of sulfur and plasticizing the polymer. No. 2,385,739. Howard Starkweather and Frank Wilder to E. I. du Pont de Nemours & Co.

*Specialties

Permanently unkinking hair or wool material on sheepskin; steeping material into bath containing halogenating substance capable of halogenating said hairs, then subjecting material to resinoid forming means, further treating hairs by straightening and combing same. No. 2,383,963. Steven Gottfried; Eva Gottfried, administrtrix of said Steven Gottfried, deceased, to Bureau for Financial Advice, Inc.

Non-tacky, water insoluble color cosmetic coating material for hair, skin, nails and lips comprising prolamine plastic base material which contains water soluble extending material and a finely divided pigment material suspended therein. No. 2,383,990. Sverre Quisling.

Lubricant comprising mineral oil containing corrosion and oxidation inhibiting amounts of additive mixture composed of mercaptobenzothiazole and a dimorpholine sulfide. No. 2,384,002. Alfred Bayes to Carbide and Carbon Chemicals Corp.

Scouring and polishing powder comprising sawdust, particles of which are coated with dried binder, finely ground diatomaceous earth imbedded in binder and dry soap powder. No. 2,384,006. Joseph Bleakney.

Lubricating composition for lubrication of surfaces exposed to mixtures of hydrogen halides and hydrocarbons which comprises anhydrous lanolin and graphite. No. 2,384,023. Lionel Galstaun to Tide Water Associated Oil Co.

Preservative for wood and other organic materials comprising (a) substance selected from (1) acid ferrous salt and (2) a mixture of an acid and a neutral ferrous salt, (b) arsenic acid, and (c) potassium bromide as catalyzer for oxidation, in impregnated material, of ferrous salt to ferric salt. No. 2,384,026. Bror Hager to Bolidens Gruvaktiebolag.

Composition comprising waxy mineral lubricating oil and pour depressor produced by resinification of an alkylated aromatic hydrocarbon containing alkyl group having less than 7 carbon atoms. No. 2,384,107. Eugene Lieber to Standard Oil Development Co.

Printink ink comprising news ink vehicle having incorporated ground compacted carbon black. No. 2,384,236. Clinton Carlton to J. M. Huber Corp.

Esters of halonitrophenols as insecticides. No. 2,384,306. William Hester and W. E. Craig to Rohm & Haas Co.

Run inhibiting preparation for sheer hosiery consisting of zinc resinate, ammonia, water and organic water-soluble solvent for zinc resinate consisting of group of isopropyl alcohol and acetone. No. 2,384,382. Frank Lindstaedt.

Manufacture of vulcanized oil products from fatty oils, which comprises mixing fatty oil with sulphur and heating until vulcanization is obtained, and then treating with ammonia, until hardness of vulcanized oil is increased. No. 2,384,491. Karl Posnansky to The Stamford Rubber Supply Co.

Lubricant consisting of mineral oil containing detergent composed of metal salt of acid of 2-ethyl butyric acid and 2-ethyl hexoic acid. No. 2,384,551. Leon Jehle to Carbide and Carbon Chemicals Corp.

Anti-freeze cooling fluid comprising water-soluble alcohol freezing-point depressant, and inhibitor composed of a mixture of soluble inorganic borate and inorganic phosphate salts. No. 2,384,553. Alfred Kiffer to Carbide and Carbon Chemicals Corp.

Lubricating oil, consisting of mineral lubricating oil and an ester; said ester being alpha-beta unsaturated carboxylic acid-unsaturated aliphatic alcohol polyester addition-condensation polymer. No. 2,384,595. Charles Blair, Jr. to Petrolite Corp. Ltd.

Production of a soluble, stable, solid chlorine bleach. No. 2,384,629. Karl Laue to The Solvay Process Co.

Abrasive product comprising abrasive grains bonded with sulphur vulcanized butadiene copolymerized with another compound selected from vinyl and methyl vinyl compounds. No. 2,384,683. Samuel Kistler to

Abrasive product comprising abrasive grains distributed and held together Norton Co.
by bond that comprises product with sulphur as vulcanizing agent of mixture of butadiene compound selected from (1) butadiene polymer and (2) butadiene copolymer comprising butadiene copolymerized with vinyl compound, and unvulcanized natural rubber. No. 2,384,684. Samuel Kistler to Norton Co.

Insecticidal amides. No. 2,384,811. Gerald Coleman, Wesley Schroeder, and Gerald Griess to The Dow Chemical Co.

Insecticidal spray comprising petroleum distillate having dissolved therein pyrethrin and N-cyclohexyl-N-2-chloroallyl amide. No. 2,384,812. Gerald Coleman, Wesley Schroeder and Gerald Griess to The Dow Chemical Co.

Metal cutting lubricant and coolant consisting of isopropyl alcohol and amine selected from alkyl hydroxylated, and aromatic amines. No. 2,384,960. Gerald Phillips to Standard Oil Development Co.

Non-caking cleanser composition which comprises mixture of finely divided silica and finely divided water-soluble alkaline alkali metal phosphate, and finely divided calcium silicate to prevent caking. No. 2,385,075. James Gunther to Industrial Patents Corp.

Producing emulsion of wax-oil mixture with water. No. 2,385,236. August Henry Schutte.

Combatting chewing insects which comprises applying to food of insect a phenoxazine. No. 2,385,284. William Knapp to General Chemical Co.

Pressure-sensitive adhesive tape comprising flexible backing bearing on one side thereof an exposed homogeneous coating of rubber adhesive mass having tacky, stable, pressure-sensitive qualities, said mass containing vulcanizing ingredients including thiuram polysulfide. No. 2,385,319. Warner Eustis and George Orrill to The Kendall Co.

Solidifying normally liquid inflammable hydrocarbons which comprises reacting a solution, in said hydrocarbon, of one organic acid, saponifiable to produce voluminuous metallic soap gel insoluble in said hydrocarbon, with a saponification agent, selected from sodium hydroxide and sodium alcoholates, etc. No. 2,385,361. Albert Laliberte to Safety-Fuel Inc.

Making homogeneous solidified hydrocarbon product from granular non-homogeneous solidified hydrocarbon material, which comprises heating such hydrocarbon material without removal of hydrocarbon, said hydrocarbon material containing as solidificant a voluminous soap gel, selected from higher aliphatic acid soaps and rosin soaps, etc. No. 2,385,362. Albert Laliberte to Safety-Fuel, Inc.

Solidifying normally liquid inflammable hydrocarbons which comprises reacting rosin solution in said hydrocarbon with a saponification agent consisting of sodium hydroxide and sodium alcoholates suspended in said hydrocarbon to form a voluminous metallic soap gel in presence of aliphatic water-soluble alcohol. No. 2,385,363. Albert Laliberte to Safety-Fuel, Inc.

Manufacturing abrasive articles comprising mixing mass of abrasive particles with heat-hardenable adherable mixture of a dihydroxy benzene-aldehyde resin and a methylene-containing setting and hardening agent to harden the resin. No. 2,385,371. Philip Rhodes to Pennsylvania Coal Products Co.

Heat-treated asbestos filled molding composition. No. 2,385,384. Paul Schroy to American Cyanamid Co.

Marine flare comprising container which will float in water in a given position, said container having compartment containing a light hydrocarbon and a compartment containing alkali metal, etc. No. 2,385,376. Frank Ogle to Imperial Chemical Industries Ltd.

Frost-preventing screen for aircraft windows and method of making same, comprising mixing gelatin with water and glycerine, to form homogeneous composition, treating composition with sulfur dioxide until pH has been lowered to 4.70, adding aluminum chloride together with acid to maintain pH at 4.70, then applying composition in uniform film to sheet of transparent flexible resinous material, etc. No. 2,385,411. William Geer.

Fire extinguishing composition in form of granular product, comprising contiguous bituminous granules containing bitumen solid at ordinary atmospheric temperatures and containing finely-divided solid material that is unmeltable when subjected for 5 minutes to a temperature of 1200° F. No. 2,385,500. George Fasold and Harold Greider to The Philip Carey Manufacturing Co.

Detergent bars or cakes containing solid salts of sulphuric acid ester of diglycerides of long-chain fatty acids. No. 2,385,614. Emil Dreger and Adam Bell to Colgate-Palmolive-Peet Co.

Motor fuel containing unsaturated hydrocarbons which normally tend to develop gums, stabilized against gum formation by presence of N,N'dicycloaliphatic-p-phenylene diamine. No. 2,385,757. Elmer Cook and William Thomas, Jr. to American Cyanamid Co.

*Textiles

Fibers selected from cellulose esters and cellulose ethers and containing 1:4-di-(arylamino)-anthraquinone. No. 2,383,995. Edmund Stanley, Christopher Argyle, and Henry Olpin to British Celanese Ltd.

Composition for dressing textile materials, comprising lubricating oil and salt of diethyl-ethylene-diamine with acid sulphate of aliphatic alcohol. No. 2,384,053. Edward Thomas to Celanese Corp. of America.

Obtaining raised fabrics of improved handle and appearance which includes treating fibres with intermediate resin, subjecting fabric to raising operation and thereafter converting intermediate resin into insoluble form. No. 2,384,871. Cyril Atkinson to Courtaulds Ltd.

Producing woven elastic fabrics which includes interweaving plurality of laterally-spaced-apart elastic strands and plurality of heat-shrinkable strands of artificial resin. No. 2,384,936. Samuel Lilley and Edward Foster to United Elastic Corp.

Composition for sizing yarns of regenerated cellulose prepared by saponification of stretched yarns having basis of organic ester of cellulose, said composition comprising polymerized ethylene oxide, wetting or penetrating agent, and substance selected from group consisting of (1) polymerized methacrylic acid, (2) salts of polymerized methacrylic acid, etc. No. 2,385,110. George Seymour and Dustin Miller to Celanese Corp. of America.

Making textile fabrics colored by emulsion-deposited pigments, improving wash-fastness, dry crock resistance and wet crock resistance of pigmented surfaces which comprises treating fabric surface with emulsion containing light-fast pigment and a binder selected from heat-curable alkyd and heat-curable alkylated amidealdehyde type resins, etc. No. 2,385,320 Ralph Greene, Roy Kienle and Richard Vartanian to American Cyanamid Co.

Stretching cellulose ester yarn which comprises passing preformed water-wet filaments, yarns, of artificial thermoplastic material through bath of molten material from low melting inorganic salts, metals and metal alloys. No. 2,385,403. Rollin Conaway to E. I. du Pont de Nemours & Co.

Conditioning fluid for textile materials comprising mineral oil, oxidized vegetable oil, compounds selected from dibutyl and diamyl derivatives of phenols, acyl derivative of an ester of a hydroxylated higher fatty acid. No. 2,385,423. George Seymour and Walter Brooks to Celanese Corp. of America.

Sizing and finishing composition to render textile material permanently crisp and resistant to shrinkage, comprising amylaceous substance, water-soluble urea-aldehyde condensation product, and water-soluble poly-

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* Continued from Vol. 578, Nos. 1, 2, 3, 4.

vinyl composition containing polyvinyl alcohol. No. 2,385,714. Fred La Piana and Herman Bosland to Stein, Hall & Co. Inc.

Textile printing composition which will print on greige goods comprising resinous binder dissolved in volatile solvent, and a terpene ether. No. 2,385,737. St. Clair Smith.

Finishing textiles which comprises applying finishing agent containing aldehyde condensation product of a water-insoluble guanamine. No. 2,385,765. Jack Thurston to American Cyanamid Co.

Finishing textiles which comprises applying formaldehyde condensation of an N-substituted guanamine. No. 2,385,766. Jack Thurston to American Cyanamid Co.

Agriculture

Producing plasticizing composition comprising fermenting aqueous alkaline solution comprising fermentable sugar, yeast and nutrient salts for yeast to give alcohol, acetic acid and glycerol, etc. No. 2,386,381. Ralph Cornwell to Sylvania Industrial Corp.

Fermentation of carbohydrates, starches, sugars, cellulosic and hemi-cellulosic materials, to produce useful organic material, which comprises inoculating mash of such material with culture of Clostridium butylobutyricum and allowing fermentation to take place not below 37° C. and not above 43° C. No. 2,386,375. Charles Welling to Phillips Petroleum Co.

Modifying starch by heating in presence of water, improvement which consists in contacting starch undergoing modification with saturated aliphatic monohydric alcohol, to reduce temperature at which starch gelatinizes. No. 2,386,509. **Thomas Schoch to Corn Products Refining Co.**

Alkaline de-esterification of pectin materials, which comprises adding ionizable salt selected from alkali metal, alkaline earth metal and ammonia salts to reaction mixture. No. 2,386,323. **Hans Lineweaver** and Rolland McCready to the United States of America, as represented by the Secretary of Agriculture.

Preparing sweetening medium from fruit, which comprises adding alkaline defecating agent to composition comprising liquid and flesh portions of fruit, etc. No. 2,385,801. Arvid Erickson and John Ryan to Barron-Gray Packing Co.

Apparatus for treatment of fruit pomace. No. 2,387,165. Ernest Metzner to Stauffer Chemical Co.

Preparation of pectin. No. 2,387,636. Herbert Bailey to California Fruit Growers Exchange.

Preparation of pectin. No. 2,387,635. **Herbert Bailey to California Fruit Growers Exchange.**

Biochemical

Recovering bile pigment from natural complex containing same. No. 2,386,716. Jules Porsche and Fred Solms to Armour & Co.

New sterol derivatives which comprise reacting a 3-ether of 7-keto cholesterol with aluminum isopropoxide in anhydrous isopropanol to reduce 7-keto group to 7-hydroxyl group, etc. No. 2,386,636. Hans Rosenberg and Stockton Turnbull, Jr. to E. I. du Pont de Nemours & Co.

Producing 7-dehydro-cholesterol. No. 2,386,635. Hans Rosenberg to E. I. du Pont de Nemours & Co.

Preparation of nucleic acid. No. 2,387,040. Sutton Redfern to Standard Brands Inc.

Recovering dissolved riboflavin from a nutrient mash which has been fermented by organism Eremothecium ashbyii. No. 2,387,023. George Hines, Jr. to Commercial Solvents Corp.

Producing dextran acetate. No. 2,386,994. William Waldie and John Bersuder to Chemical Developments Corp.

Manufacture of compounds of cyclopentanopolyhydrophenanthrene series, subjecting member selected from series of cholanic acid, its lower homologues and the stereoisomers thereof, to oxidation by treating with chromic acid. No. 2,387,706. Tadeus Reichstein.

Self-sustaining heat-generating compressed sugar-teating tablet comprising mixed dry powdery materials including anhydrous alkali metal hydroxide in excess and to generate heat for effecting test, anhydrous cupric sulfate, acid for sugar test selected from citric and tartaric acids, and effervescent couple consisting of acid selected from citric and tartaric acids and of carbonate salt from alkali metal carbonate and alkali metal bicarbonate, said tablet to be placed in liquid specimen to be tested for reducing sugar. No. 2,387,244. Walter Compton and Joseph Treneer to Miles Laboratories, Inc.

Ceramics

Making glass. No. 2,386,685. Harrison Hood to Corning Glass Works.

Apparatus for making glass film. No. 2,386,511. Games Slayter and Henry Snow to Owens-Corning Fiberglas Corp.

Flexible electrical insulating layer comprising forming in suspension medium a suspension of a finely divided refractory material, comprising a vitreous enamel, and a finely divided elastomer. No. 2,386,634. Preston Robinson to Sprague Electric Co.

Fired ceramic material which physically comprises small crystals and glass cementing together said crystals. No. 2,386,633. Merle Rigterink to Bell Telephone Laboratories, Inc.

Treating aplite to reduce it to a grain size for use in ceramic ware or for similar purposes. No. 2,387,561. Ralph Brenner to Dominion Minerals, Inc.

Coatings

Paper coated with mixture composed of rubber hydrochloride and a benzene-soluble copolymer of vinyl chloride and vinylidene chloride. No. 2,386,700. Frank Manchester to Wingfoot Corp.

Apparatus for coating strands. No. 2,386,090. Yves Bouget to Western Electric Co. Inc.

Coating a surface which comprises applying to surface a film of suspension of finely divided thermoplastic organic plastic material in suspension in organic liquid medium which is non-solvent for plastic, said medium containing dissolved therein compatible plasticizer for plastic. No. 2,385,920. John Jenkins to Pittsburgh Plate Glass Co.

Coating reflective mirror surface with quartz by evaporation technique within a vacuum. No. 2,386,876. James Ogle, Jr. and Arthur Weinrich to Libbey-Owens-Ford Glass Co.

Coating surfaces with quartz by evaporation technique within a vacuum. No. 2,386,875. Willard Morgan to Libbey-Owens-Ford Glass Co.

Coating elongated body comprising, drawing body through column of viscous plastic. No. 2,386,818. Frederick Seavey to Olin Industries, Inc.

Treating metallic article, which comprises coating article with rubber antioxidant selected from butyraldehyde-aniline condensation product, diphenylamine acetone reaction product, phenyl-alpha-apthylamine and mixture of diphenyl-para-phenylene with phenyl-alpha-napthylamine, applying thereover covering of vulcanizable rubber insulating compound, and vulcanizing. No. 2,387,498. Thomas Cox to Western Electric Co. Inc.

Making wrinkle varnish coating composition which comprises extracting non-conjugated type drying oil with selective solvent selected from furfural, furfural acetone, furfuryl alcohol, and tetrahydrofurfuryl alcohol, separating solvent-extract mixture from oil, reacting remaining oil with resin to form wrinkle varnish base, adding drier and solvent-extract mixture to varnish base, and heat treating. No. 2,387,424. William Waldie to New Wrinkle, Inc.

Coated product comprising flexible base and coating comprising nitrocellulose film forming constituent and plasticizer comprising reaction product of castor oil, maleic anhydride and diethylene glycol. No. 2,387,394. William Hedges, John Lowman and Thomas Kerr to Columbus Coated Fabrics Corp.

Making modified castor oil product for softener in coating compositions, comprising heat reacting mixture consisting of castor oil, anhydride, and diethylene glycol. No. 2,387,393. William Hedges, John Lowman and Thomas Kerr to Columbus Coated Fabrics Corp.

Shellac product made by reacting shellac and ethylene glycol and further reacting product with polyglycol of molecular weight approximately 1500. No. 2,387,388. William Gardner and Henry Bassford, Jr. to U. S. Shellac Importers Association, Inc.

Adhesive and coating composition consisting in silicate base adhesive having dispersed therein mixture of a coumarone-indene resin and plasticizer for said resin. No. 2,387,367. Charles Vana to E. I. du Pont de Nemours & Co.

Dyestuffs

Azo compounds and material colored therewith. No. 2,386,599. Joseph Dickey and James McNally to Eastman Kodak Co.

Azo dye containing hexylresorcinol. No. 2,386,596. Moses Crossley and Byron West to American Cyanamid Co.

Production of discharge printing effects upon textile material comprising cellulose acetate dyed with an azo dyestuff. No. 2,385,885. George Seymour and Victor Salvin to Celanese Corp. of America.

Manufacture of stilbene dyestuffs by condensation of dinitrostilbene disulfonic acid, dinitrodibenzyl disulfonic acid or p-nitrotoluene sulfonic acid with aromatic compounds, in presence of caustic alkalis, etc. No. 2,385,862. Ernst Keller to J. R. Geigy A. G.

Manufacture of new coloring matters. No. 2,385,855. Eric Goodings and Maurice Rogers to Imperial Chemical Industries Ltd.

Production of dyestuffs which comprises condensing compound selected from alkyl and aralkyl quaternary salts of compounds of formula described in patent. No. 2,385,815. John Kendall and Douglas Fry to Ilford Ltd.

Azo dyestuff composition of stilbene series produced by condensing 2-(4'-amino-benzene-azo)-naphthalene-6,8-disulfonic acid with 4,4'-dinitro-stilbene-2,2'-disulfonic acid. No. 2,386,847. William Eagle to Allied Chemical & Dye Corp.

Equipment

Means for filtering fluids and liquids comprising plurality of groups of sheets formed of deflocculated fibers having wet strength to resist penetration by fluid and liquid being filtered. No. 2,386,684. William Hermanson.

Apparatus for contacting gases with a particle form solid material comprising: elongated, closed upright vessel, etc. No. 2,386,670. Louis Evans to Socony-Vacuum Oil Co. Inc.

Capacitor dielectric detached sheet material consisting of cellulose acetate having magnesium oxide dispersed therein. No. 2,386,659. Frank Clark to General Electric Co.

Chemical immersion heater. No. 2,386,654. Walter Caldwell to Imperial Chemical Industries Ltd.

Apparatus for precise determination of level of a column of liquid in tube having scale associated with said tube, comprising element constructed and arranged to float in liquid, said element having portion which is permanently magnetized, etc. No. 2,386,643. Charles Wallace to Wallace & Tiernan Products, Inc.

Hose clamp. No. 2,386,629. Edwin North and William Burke to National Lock Co.

Evaporator unit comprising contiguous secured-together metal sheets bent to form bottom, side walls and top of a sharp freezing chamber, etc. No. 2,386,613. Bernard Johnson to Houdaille-Hershey Corp.

Open hearth furnace. No. 2,386,565. Raoul Nissim.

Deep well oil and gas separator. No. 2,386,564. William Munk.

Streamcurrent apparatus for handling solutions and suspensions. No. 2,386,419. George Auer.

Treating tank for treating mixture of liquid and insoluble solids, a mixture inlet pipe discharging downwardly and inwardly of tank at one end thereof, a partition extending transversely across tank inward of inlet pipe, etc. No. 2,386,415. Roderick Webster and Philip Will to The Hydro-Blast Corp.

Preparing very finely divided silica which comprises pouring aqueous solution of sodium silicate into methanol to precipitate finely divided sodium silicate particles, adding acid-reacting material to abstract sodium from, precipitate and to convert it into silicic acid, etc. No. 2,386,337. Paul Moyer, deceased, by Elizabeth Moyer, administratrix.

Diffusion pump. No. 2,386,299. James Downing to National Research Corp.

Diffusion pump. No. 2,386,298. James Downing and William Humes to National Research Corp.

In apparatus for separating constituents of gaseous mixtures, a heat exchanger wherein entering gaseous mixture is partially liquefied, means capable of withstanding pressures of 9 to 10 atmospheres for segregating liquid and gaseous phases, a rectification column having a vaporizer, etc. No. 2,386,297. Wolcott Dennis to Air Reduction Co. Inc.

Centrifugal separator for unburdening carrier fluid of particles suspended therein comprising: diffuser housing of circular formation having flat side walls connected by circular peripheral wall, etc. No. 2,386,196. David Dalin.

Heat exchange apparatus for recovering waste heat from gases comprising air heating device having plurality of air heaters through each of which air and gases flow in indirect heat exchange relationship, etc. No. 2,386,188. Nicholas Artsay to Foster Wheeler Corp.

Portable apparatus for containing liquefied gases and supplying gas under pressure directly therefrom. No. 2,385,984. Odd Hansen and Peter Riede to The Linde Air Products Co.

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Electric induction furnace. No. 2,385,983. Merle Hanes to Olin Industries, Inc.

Hardness measuring apparatus. No. 2,385,958. Ragnar Woven to Aktiebolaget C. E. Johansson.

Salt bath furnace. No. 2,386,529. William Wilson and John Brutvan to The Cleveland Twist Drill Co.

Corrosion resisting tank, opposite plate glass side walls, opposite plate glass end walls, and a plate glass bottom, etc. No. 2,385,954. Milton Tarnopol to Pittsburgh Plate Glass Co.

Glass-lined containers for corrosive substances. No. 2,385,924. Percy Knudsen to Pittsburgh Plate Glass Co.

Apparatus for continuously heating fluid to predetermined temperature comprising receptacle subdivided into upper and lower drum connected thereto, means for indirectly heating by combustion fluid in said lower drum, electric resistance heater in said upper drum. No. 2,385,846. William Seifert to Electric Heating Equipment Co.

Mould and core construction for casting, in one piece, combined gas collector and cell cover for electrolytic cells of tank type. No. 2,385,830. Alexander Moore and Frank Moran, Herbert Christian and Darcy Morris to The Consolidated Mining & Smelting Co. of Canada, Ltd.

Whirlpool flask. No. 2,387,092. Peter Schlumbohm.

Catalyst chamber comprising body having a bore, an inlet and an outlet, perforated end plates extending across bore, etc. No. 2,387,026. Richard Huntington to Phillips Petroleum Co.

Autoclave assembly, comprising a support upright, pulley at top of upright, carriage slidably mounted on upright, etc. No. 2,387,024. Patrick Hishon, William Carter, and Thomas Ravn and Herbert Borchers to Shell Development Co.

Apparatus for separating discrete particles from a mixture of fibre and particles, comprising a nozzle for a fluid jet, a conical baffle including an apex spaced from and in line with said nozzle, etc. No. 2,386,975. Gale Pearce and Grover Rhodes to Johns-Manville Corp.

Insulated container for storing liquefied gas, comprising inner and outer spaced apart metallic shells insulated one from other, etc. No. 2,386,958. James Jackson to Pittsburgh-Des Moines Co.

Apparatus for effecting conversion of hydrocarbons in vapor form in contact with a moving bed of particle form solid catalytic material of varying activity. No. 2,386,846. George Dunham to Socony-Vacuum Oil Co. Inc.

Electrical precipitator. No. 2,386,827. Harry White; one-half to Research Corp., and one-half to Western Precipitation Corp.

Apparatus for producing sucked-on filters for gas mask cannisters. No. 2,386,792. Frank Hale and Oliver Gaines to Secretary of War of the United States, as trustee for the United States of America.

Device for determining intensity of radiation in an X-ray diffraction pattern which comprises, means mounting specimen for rotation about axis, directing beam of radiation upon specimen, etc. No. 2,386,785. Herbert Friedman.

Apparatus for fractionation of fluid mixture containing components of different volatilities. No. 2,386,778. Joseph Claffey to The United Gas Improvement Co.

Preparing selenium cell which comprises applying to surface of selenium a cellulose lacquer containing moisture and electrically conducting substance. No. 2,386,750. Otto Saslaw to Federal Telephone & Radio Corp.

Coke oven operable with dilution of heating gas by waste gas. No. 2,387,615. Josef Schafer.

Electric contact element formed of mixture of carbonaceous material, and finely divided boron carbide. No. 2,387,614. Robert Savage to General Electric Co.

In refractometer for determining refractive power of turbid liquids and pulpous substances a measuring prism bounded by number of plane surfaces which are perpendicular to one and the same plane, etc. No. 2,387,581. Gerhard Hansen.

Jolly balance, improvement which comprises vertically disposed, rotatable, cylindrical chart carried by base, said chart being provided with index and calibrated to read in density values directly. No. 2,387,489. Lothrop Bailey to Gulf Research & Development Co.

Fractionating column having separate heating units for end portions thereof, said heating units overlapping each other at middle portion of column so that heat developed per unit of area in middle portion will be greater than that developed by one of said heating units, and less than that developed by other units. No. 2,387,479. Floyd Todd.

Apparatus for supplying sterilizing gas to liquid to be sterilized, in combination open receptacle in which is maintained a body of liquid, closed container placed in open receptacle, means for admitting gas into container, etc. No. 2,387,406. Georg Ornstein.

Filter for liquids or gases having casing, inlet and outlet passages therein, a filtering unit including upper cap, lower cap, spaced inner and outer filtering elements held by and between caps to define a filter-inlet area. No. 2,387,368. Cecil Gordon Vokes.

Apparatus for cleaning combustion gases from a stack comprising straight cylindrical shell of diameter greater than the stack, having its upper end extending above and its lower end extending below stack, etc. No. 2,387,345. William Pearl to Whiting Corp.

Liquid level switch comprising closed receptacle containing electrolyte, electrode means to provide current-conducting path from electrolyte to electrode means, electrolyte comprising ethanol and water containing iodine of alkali metal. No. 2,387,313. Elwood Wilson, Jr. to Sperry Gyroscope Co. Inc.

Self-supporting light-polarizer comprising transparent glass which has been stretched in heated condition, said glass having minute inorganic crystals selected from tourmaline and epidote crystals embedded therein. No. 2,387,308. Harry Styll to American Optical Co.

In fractionating column, combination comprising a shell, and a series of downwardly dished trays coaxially arranged in shell. No. 2,387,231. Robert Bottoms and James Bowden to National Cylinder Gas Co.

Explosives

Method of filling containers with explosive mixtures which comprises in-

troducing one of ingredients in liquid phase into container, freezing introduced liquid ingredient, introducing other ingredient in liquid phase into the container. No. 2,385,810. Nevil Hopkins; Raymonde Hopkins executor of said Nevil Hopkins, deceased.

Refining trinitrotoluene which comprises treating trinitrotoluene in crystal form with sodium sulfite solution to form a slurry, etc. No. 2,387,488. Marshall Acken and Oscar Olsen to E. I. du Pont de Nemours & Co.

Food

Protecting fresh whole fruit from decay which comprises: contacting fruit with aqueous solution of a hypochlorite of an alkali forming metal, subsequently contacting fruit with aqueous solution containing reducing agent selected from phosphites, sulphites, bisulphites, metabisulphites and thiosulphates of alkali forming metals, and contacting fruit with aqueous solution containing a water soluble salt of hydroxy diphenyl. No. 2,386,954. Arthur Kalmar to Food Machinery Corp.

Preparing heavy rums, which comprises removing excess ash and gums from a blackstrap molasses. No. 2,386,924. Rafael Arroyo.

Inorganic

Treating asbestos masses to separate individual fibers in longer spicules and eliminate extremely short fibers from masses without removing short fibers. No. 2,386,715. Lee Pharo to Johnson's Company.

Treating fiberized asbestos containing lumps. No. 2,386,714. Lee Pharo to Johnson's Company.

Treating asbestos obtained by dry milling asbestos ore wherein rock is crushed and asbestos fibers of spinning grade are removed therefrom containing dust to impair their textile qualities. No. 2,386,713. Lee Pharo to Johnson's Company.

Disintegrating calcium sulfate deposits at bottom of earth bores which comprises contacting deposits with concentrated aqueous potassium hydroxide solution. No. 2,386,605. Erskine Harton, Jr. and Priscilla Lyon to The Pure Oil Co.

Producing alkaline earth metal cyanides. No. 2,386,435. Ludwig Christmann and Alfred Houpt to American Cyanamid Co.

Producing high-grade calcium cyanide. No. 2,386,434. Ludwig Christmann and Alfred Houpt to American Cyanamid Co.

Apparatus for recovery of sulphur from gases comprising tower, inlet for reacting gases at top thereof, upper portion of tower being filled with packing and forming reaction space, etc. No. 2,386,390. Willis Fernelius and James McReynolds.

Production of calcium and magnesium compounds from dolomite. No. 2,386,389. Frank Elkington and Heinz Chesny; said Elkington to said Chesny.

Treating air for blast furnace consisting in cooling air from its entering condition to a predetermined final condition where it contains 3 grains of moisture per cubic foot of air, etc. No. 2,386,292. Willis Carrier to Carrier Corp.

Manufacture of aluminum halide fibres which comprises heating anhydrous aluminum halide under pressure to molten state, forming stream of molten aluminum halide of small diameter. No. 2,386,524. Thomas Whaley, Jr. to Phillips Petroleum Co.

Preparing alcoholic solutions of hydrogen peroxide which comprises reacting ester of boric acid with aqueous hydrogen peroxide to hydrolyze ester to boric acid. No. 2,386,484. Nathan Levitan and Robert Kuoch to Buffalo Electro-Chemical Co. Inc.

Preparation of alkaline earth metal cyanides by double decomposition. No. 2,386,436. Ludwig Christmann and Alfred Houpt to American Cyanamid Co.

Continuous process for extraction of sulphur from gases. No. 2,386,202. Willis Fernelius and James McReynolds to Southern Acid & Sulphur Co. Inc.

Producing compound of a metal from left-sub-group of group VI of periodic table in ammonia soluble form, comprising subjecting a sulfide of metal, prepared from hydrogen sulfide and a compound of metal, to wet oxidation to produce water insoluble, ammonia soluble oxide precipitate of metal and recovering metal oxide precipitate. No. 2,386,081. Raymond Archibald and Robert Trimble to Shell Development Co.

Purging powdered regenerated catalyst containing oxygen adsorbed therein. No. 2,386,032. Donald Campbell to Standard Oil Development Co.

Separating magnesia from dolomite that has been calcined until completely converted into oxides of calcium and magnesium. No. 2,386,027. Wallace Wing to Marblehead Lime Co.

Preparing water-soluble product which comprises heating mixture of crystalline trisodium phosphate and phosphorus pentoxide. No. 2,385,928. Leonard Meites.

Reduction of ammonium molybdate to molybdenum. No. 2,385,843. Robert Rennie to Westinghouse Electric Corp.

Recovering beryllium values as beryllium fluoride from siliceous beryllium ores which comprises forming mixture containing ore, aluminum fluoride and substance capable of reaction with silica to eliminate silica. No. 2,387,207. Charles Willmore and Frank Chew to Aluminum Co. of America.

Making beryllium fluoride which comprises mixing double fluoride of aluminum and alkali metal with siliceous beryllium ore. No. 2,387,206. Charles Willmore and Frank Chew to Aluminum Co. of America.

Recovering beryllium values as beryllium fluoride from siliceous beryllium ores which comprises treating ore to eliminate silica, mixing treated ore with aluminum fluoride. No. 2,387,205. Charles Willmore and Frank Chew to Aluminum Co. of America.

Recovering beryllium values as beryllium fluoride from siliceous beryllium ores which comprises forming mixture containing ore, magnesium fluoride and substance capable of reaction with silica to eliminate said silica. No. 2,387,204. Charles Willmore and Frank Chew to Aluminum Co. of America.

Recovering beryllium values as beryllium fluoride from siliceous beryllium ores which comprises treating ore to eliminate silica and reacting treated ore with magnesium fluoride. No. 2,387,203. Charles Willmore and Frank Chew to Aluminum Co. of America.

Preparation of zirconium dioxide by purifying crude zirconium compounds or ores. No. 2,387,046. Eugene Wainer to The Titanium Alloy Manufacturing Co.

Separation and recovery of ammonium thiocyanate and ammonium thiosulphate of aqueous gas liquors. No. 2,386,985. Joseph Shaw to Koppers Co. Inc.

Preparing sol containing silica capable of setting to hydrogel without formation of gelatinous precipitate of silica by adding alkaline silicate solution, containing a soluble metal aluminate, to acid solution comprising a strong acid and a weak acid. No. 2,386,810. Milton Marisic and Sheldon Dray to Socony-Vacuum Oil Co. Inc.

Recovering volatile fluoride selected from hydrogen fluoride and boron trifluoride, which comprises absorbing fluoride in a di-aryl ketone. No. 2,386,798. Everett Hughes to The Standard Oil Co.

Production of hydrocyanic acid by catalytically reacting nitric oxide with hydrocarbon in vapor phase, etc. No. 2,387,577. Howard Green to E. I. du Pont de Nemours & Co.

Making high temperature-resisting bonded mica products. No. 2,387,559. Willis Boughton and William Mansfield and Frank Hughes to Willis Boughton, Chester Dawes, William Mansfield, Frank Hughes and Donald Hill, trustees of Mica Patents Trust.

Recovery of sulphuric acid by hydrolysis of sludge material obtained in treatment with concentrated sulphuric acid of petroleum residuum oil. No. 2,387,519. James Lillard and Reuben Pfennig to Standard Oil Development Co.

Preparation of non-hygroscopic and moisture-free catalyst which comprises heating mixture of phosphorus pentoxide and metal oxide selected from copper, magnesium, iron, zinc, aluminum, tin, and nickel, together with a coke-forming hydrocarbon. No. 2,387,318. Harry Drennan to Phillips Petroleum Co.

Producing sodium cyanide by reaction of carbon, sodium carbonate and pure nitrogen. No. 2,387,287. David Pall to Interchemical Corp.

Separating aluminum chloride from mixture comprising aluminum chloride, ferric chloride, silicon tetrachloride, and titanium tetrachloride. No. 2,387,228. Philip Arnold to Phillips Petroleum Co.

Medicinal

Preparing therapeutic agent effective against measles. No. 2,386,725. Lyon Strean to Ayerst, McKenna & Harrison Ltd.

3-Derivatives of saturated and unsaturated androstane-3-one-17-ols substituted in 17-position and process of making same as well as corresponding free ketones. No. 2,386,331. Karl Miescher to Ciba Pharmaceutical Products Inc.

Antiseptic composition for liberation of iodin in accordance with presence of bacteria, including water soluble iodide, water soluble iodate, and means for stabilizing iodin-liberating reaction of iodide and iodate, including water soluble orthophosphate which does not have an acid reaction, and water soluble acid carbonate. No. 2,386,252. Majer Mendelsohn.

Producing hormones which comprises heating a diester of 3,4-di- (p-hydroxyphenyl)-3,4-dibromohexane with a solution of potassium iodide in alcohol, and saponifying resulting product. No. 2,385,853. Stockton Turnbull, Jr. to E. I. du Pont de Nemours & Co.

Hormone derivatives. No. 2,385,852. Stockton Turnbull, Jr. to E. I. du Pont de Nemours & Co.

Apparatus for determining blood volume of patient by the comparison of dyed and undyed blood specimens. No. 2,386,878. John Nickerson to the Secretary of War of the United States of America.

Sulphonamides and process of making same. No. 2,386,852. Max Hartmann, Franz Cueni, Jean Druey and Harald von Meyenburg to Ciba Pharmaceutical Products, Inc.

Glycoside of a beta-(3-hydroxycyclopentanopolyhydrophenanthrene)-delta, alpha, beta-butyrolactone having aldose residue containing a beta-pyranoside ring in which substituents on second and third carbon atoms are in a trans relation. No. 2,386,783. Robert Elderfield and Frederick Uhle to Eli Lilly & Co.

Producing compounds having antineuritic properties which comprises condensing a 2-methyl-6-amino-pyrimethyl aryl sulphonate with 4-methyl-5-beta-hydroxy-ethyl thiazole. No. 2,386,766. Hans Andersag and Kurt Westphal to Winthrop Chemical Co. Inc.

Member of 3-hydroxy-17-acyloxy-androstanes and the 3-hydroxy-17-acyloxy-androstenes. No. 2,387,469. Leopold Ruzicka and Albert Wettstein to Ciba Pharmaceutical Products Inc.

Alpha:alpha-diphenyl-alpha-dialkylaminoalkoxy-acetic acid-alky esters. No. 2,387,447. Karl Hoffmann and Harald von Meyenburg to Ciba Pharmaceutical Products, Inc.

Metals, Ores

Glass-to-metal seal, in combination, a borosilicate glass member, a metal member having different coefficient of expansion hermetically sealed thereto, interposed between members and integrally bonded to glass a layer of metal consisting preponderantly of lead. No. 2,386,628. Mathew Nazzewski to Sprague Electric Co.

Pressing from metallic powder of given apparent density a coherent body of predetermined greater overall and minimum density and shape, thicknesses of which, measured in direction of pressing, differ considerably so that compressing in one stel is apt to cause detrimental variations of particle concentration. No. 2,386,604. Claus Goetzel to American Electro Metal Corp.

Producing lightweight metallic bodies which comprises preparing mixture of metal, a resin and stearic acid, molding mixture into desired shape and sintering mass to volatilize and carbonize resin and plasticizer. No. 2,386,544. Henry Crowley.

Production of metals in multiple retort distilling furnaces. No. 2,386,429. Frank Breyer to Dominion Magnesium Ltd.

Nickel-free aluminum base alloy containing copper, magnesium, iron, silicon impurity, and aluminum, said alloy characterized by high tensile strength and resistance to fatigue at elevated temperatures. No. 2,386,302. La Verne Eastwood to Aluminum Co. of America.

Apparatus for producing magnesium, furnace apparatus which comprises pressure-resisting steel shell provided with removable cover and removable condenser, etc. No. 2,386,189. Glen Bagley to Electro Metallurgical Co.

Bimetallic billet and preparation and rolling thereof. No. 2,386,091. William Carlson to Superior Steel Corp.

Making sponge iron by reducing iron oxides which consists in forming hollow block consisting of finely divided oxide and binder, filling interior and surrounding exterior with finely divided carbonaceous material, and subjecting it to heat to generate reducing gases within. No. 2,386,073. John Stewart.

Apparatus for treatment of metal and like articles with liquids or vapors for degreasing. No. 2,385,860. Walter Jesson to Imperial Chemical Industries Ltd.

Beneficiation of beryl ores which comprises blunging finely-ground deslimed beryl ore in aqueous caustic alkaline pulp, adjusting pH to neutrality, then agitating and aerating mixture in presence of frothing agent and collector comprising fatty acid having from 8 to 18 carbon atoms. No. 2,385,819. Frank Lamb and Lloyd Banning to the Government of the

United States, as represented by the Secretary of the Interior.

Producing localized movement of molten metal in a body of said metal which comprises introducing gas bubbles into body, causing bubbles to be distributed throughout a vertically disposed curtain-like zone, thereby producing upward movement of a curtain-like portion of the metal within zone. No. 2,387,222. Joseph Wright to Owens-Illinois Glass Co.

Production of iron-chromium-silicon pre-alloy. No. 2,387,130. Alexander Feild to Rustless Iron and Steel Corp.

Heat treating furnace having a retort chamber adapted to receive material, etc. No. 2,387,129. Frederick Endress to Tuff-Hard Corp.

Beneficiating iron ores containing a silica-bearing gangue by froth flotation. No. 2,387,081. Earl Herkenhoff to American Cyanamid Co.

Rotary kiln for refining and reducing ferrous and non-ferrous ores. No. 2,387,014. Estell Gibson to Cowham Engineering Co.

Detinning tin coated ferrous metal. No. 2,386,970. James McCoy; one-half to Milwaukee Tool & Die Co.

Alloy steel containing nickel, chromium, manganese, carbon, and iron. No. 2,386,890. Albert Gagnebin to The International Nickel Co. Inc.

Preserving steel plate from corrosion and preparing elements of container bodies therefrom, which comprises applying to plate an adherent protective coating comprising mixture of thermo-fusible and non-heat-hardening lacquer resin and a thermo-fusible solder fluxing resin. No. 2,386,813. Frank O'Brien and Curtis Maier to Continental Can Co. Inc.

Apparatus for producing magnesium, furnace operating normally under atmosphere pressure, a metallic retort having reducing portion and condensing portion. No. 2,387,677. Lloyd Pidgeon to Dominion Magnesium Ltd.

Concentrating mixtures of minerals of different specific gravity derived from comminuted ore in which mineral values are more readily comminuted than gangue materials. No. 2,387,580. David Grove to Minerals Beneficiation, Inc.

Improving resistance to corrosion of magnesium and magnesium base alloys, which consists in subjecting metal to aqueous solution of components which consists of substance selected from sodium bichromate and potassium bichromate and concentrated nitric acid, water. No. 2,387,494. Charles Bushrod to Magnesium Elektron Ltd.

Treatment of ferrous metal stock to increase its rubber-adherent characteristics. No. 2,387,335. William Leonard to The American Steel and Wire Co. of New Jersey.

Antirust, comprising oil and corrosion-inhibiting proportion of an amidoxime. No. 2,387,323. James Gaynor and Claron White and Roger Watson to Standard Oil Co.

Inhibiting corrosion of metals by wet carbon tetrachloride in contact therewith, which comprises dissolving in carbon tetrachloride rosin and primary mono-amine. No. 2,387,284. Edward Ohlmann to The Dow Chemical Co.

Organic

Beta-cyanoethylation of a cyclic ketone having hydrogen atom on a carbon atom adjacent to carbonyl group. No. 2,386,737. Herman Bruson to The Resinous Products & Chemical Co.

Cyanoethylation of ketones. No. 2,386,736. Herman Bruson to The Resinous Products & Chemical Co.

Modifying a liquid alkyl ether of a phenol having on its aryl nucleus an unsaturated hydrocarbon substituent whose unsaturation is due to ethylenic linkage, comprising heating ether in absence of oxygen until ether is thickened. No. 2,386,719. William Schaufelberger to The Harvel Corp.

New compound, 2,3-dichloropropyl alpha-chloroacrylate. No. 2,386,694. Joy Lichty to Wingfoot Corp.

Preparing betaine-like addition compound of trimethylamine and sulphur trioxide which comprises reacting tetramethylsulphamide with dimethylsulphate at elevated temperature. No. 2,386,693. Hans Lecher and William Hardy to American Cyanamid Co.

Bis esters of iodinated phenyl aliphatic carboxylic acids. No. 2,386,640. William Strain, John Plati and Stafford Warren, one-half to Noned Corporation, and one-half to Eastman Kodak Co.

Treating retene which comprises heating in presence of catalyst for splitting away side group and producing 1-methylphenanthrene and propylene. No. 2,386,606. Torsten Hasselstrom to G and A Laboratories Inc.

Producing vinyl cyanide which comprises passing vapors of formaldehyde and organic cyanide of general formula described in patent into contact with dehydration catalyst. No. 2,386,586. Joseph Brant and Rudolph Hasche to Eastman Kodak Co.

Oxidizing cycloparaffins having five to six carbon atoms in ring to corresponding cyclic ketone which comprises passing vaporous feed consisting of cycloparaffin and air over oxidation catalyst of silver oxide. No. 2,386,372. Cary Wagner to Phillips Petroleum Co.

Manufacture of polymerizable unsaturated aliphatic acid from acrolein and alpha-substituted derivatives thereof by oxidation with molecular oxygen to produce reaction mixture containing said acid and high-boiling by-products which tend to promote polymerization of said acid. No. 2,386,365. Hanns Staudinger, Karl Tuerck, and Eric Brittain to The Distillers Co. Ltd.

Preparation of ethyl B-ethoxy-propionate. No. 2,386,363. Benjamin Souther to U. S. Industrial Chemicals, Inc.

Purification of low-boiling normally liquid diolefins. No. 2,386,352. Walter Schulze to Phillips Petroleum Co.

Manufacture and recovery of diolefins. No. 2,386,351. Walter Schulze to Phillips Petroleum Co.

Production of butadiene which comprises dehydrogenating butane to produce butenes and butadiene, extracting butadiene from dehydrogenated liquid by cuprous halide reagent and recycling residuum from cuprous halide treatment for further dehydrogenation, etc. No. 2,386,350. Walter Schulze to Phillips Petroleum Co.

Dehydrating 1,3-butylene glycol to produce 1,3-butadiene which comprises passing glycol over catalyst body consisting of ammonium phosphate on inert support composed of silica in form of feldspar-bonded silica. No. 2,386,325. Arthur Lorch to Air Reduction Co. Inc.

Dehydrating 1,3-butylene glycol to produce 1,3-butadiene which comprises passing glycol over catalyst body consisting of ammonium phosphate on inert support composed of silica in form of calcined diatomaceous earth. No. 2,386,324. Arthur Lorch to Air Reduction Co., Inc.

Manufacture of butadiene from normal butane. No. 2,386,310. Karl Hachmuth to Phillips Petroleum Co.

New water-soluble anthraquinone compounds of general formula described in patent. No. 2,386,309. Ernst Gutzwiller to Sandoz Ltd.

Separating diolefins from mixture containing same. No. 2,386,300. Harry Drennan and Walter Schulze to Phillips Petroleum Co.

Production of purified pentaerythritol, which comprises adding crude crystals of pentaerythritol to a hot, saturated aqueous solution thereof, etc. No. 2,386,289. Joseph Bludworth and Samuel Jeffries to Celanese Corp. of America.

Separation of butadiene from fluid mixtures containing same which comprises contacting mixtures with reagent comprising mixture of cuprous halide and granulated cellulosic fibrous material impregnated with high-boiling oleaginous material inert to reagent. No. 2,386,274. Graham Short and Lloyd Morris to Phillips Petroleum Co.

Carbonate of 1-R-1-aminoethane in which R is aliphatic hydrocarbon radical having from 4 to 9 carbon atoms. No. 2,386,273. Horace Shonle and Ewald Rohrmann to Eli Lilly and Co.

Resolution of mixture of close-boiling structurally isomeric aliphatic olefins having four to six carbon atoms per molecule and of different degrees of branchedness into fractions of more and less highly branched olefins which comprises extracting mixture of olefins with solvent composed of liquid furfural containing dissolved water. No. 2,386,523. Charles Welling to Phillips Petroleum Co.

Preparing a hydroxy-substituted aryl guanamine which comprises dissolving a biguanide in solvent, adding ester of a hydroxy-substituted mononuclear aromatic carboxylic acid. No. 2,386,517. Jack Thurston to American Cyanamid Co.

Preparing trimethylsilicon chloride which comprises reacting trimethylethoxysilicane with phosphorus chloride, fractionally distilling liquid reaction product and recovering trimethylsilicon chloride. No. 2,386,488. Rob McGregor and Earl Warrick to Corning Glass Works.

Producing isobutene which comprises subjecting normal butene, to acid treated clay which has been activated by heating in stream of dry air. No. 2,386,468. Vladimir Ipatieff and Raymond Schaad to Universal Oil Products Co.

Increasing viscosity of polymeric liquid organosilicon oxide composition, comprising passing oxygen through mass of organo-silicon liquid. No. 2,386,467. James Hyde to Corning Glass Works.

Vulcanization accelerator, a thiocarbamyl sulfamine. No. 2,386,457. Roy Hanslick to United States Rubber Co.

Compound having formula RSi(O-Alkyl)3, where R represents organic radical which is selected from amino-aryl and N-alkyl-amino-aryl radicals and which is attached to silicon through carbon-silicon linkage. No. 2,386,452. Robert Fleming, Jr. to Corning Glass Works.

Compositions containing proportion of esterified aliphatic polycarboxy acid fractional monoester of a polyoxyalkylene glycol, said esterification involving a hydroxyl group of a hydroxylated body. No. 2,386,446. Melvin De Groote and Bernhard Keiser to Petrolite Corp. Ltd.

Compositions containing proportion of esterified aliphatic polycarboxy sulfo acid fractional diester of a polyoxyalkylene glycol, said esterification involving hydroxyl groups of hydroxylated bodies. No. 2,386,445. Melvin De Groote and Bernhard Keiser to Petrolite Corp. Ltd.

Bis-trimethylsilicyl oxide and its preparation. No. 2,386,441. William Daudt to Corning Glass Works.

Solid complex addition compound of hydrocarbon selected from monocyclic mono-olefins and alkyl substitution products thereof with a cuprous halide. No. 2,386,256. Lloyd Morris to Phillips Petroleum Co.

Substituted 1,3,5-triazinyl-(6)-amino-phenyl-arsenic compounds. No. 2,386,204. Ernst Friedheim.

Recovery of butadiene from hydrocarbon fluid, by contacting fluid with bed of solid reagent comprising cuprous chloride to cause butadiene to selectively combine with cuprous chloride to form butadiene-cuprous chloride addition compound and recovering butadiene in pure form by heating addition compound. No. 2,386,200. Harry Drennan to Phillips Petroleum Co.

Quaternary ammonium salts, useful as water-repellent agents. No. 2,386,142. Maurice Rogers to Imperial Chemical Industries Ltd.

Organic ammonium compounds, useful as water-repellent agents, of formula described in patent. No. 2,386,140. Maurice Rogers to Imperial Chemical Industries Ltd.

Production of dienes from normal mono olefins containing 6 to 12 carbon atoms to increase proportion of C_8 dienes. No. 2,386,135. Rupert Morris and Robert Moore to Shell Development Co.

Preparing amine salts of dithiofuroic acid, which comprises reacting mixture of furfural, sulfur, primary aliphatic amine and hydrogen sulfide and recovering resulting amine salt. No. 2,386,111. Albert Hardman to Wingfoot Corp.

Purifying secondary butyl alcohol containing as impurities water and secondary butyl ether. No. 2,386,058. John Patterson and Rudolph Ozol to Standard Oil Development Co.

Removing trimethyl ethylene from C_5 cut naphtha which consists in contacting C_5 cut with formaldehyde in sulfuric acid. No. 2,386,055. Henry Mottern to Standard Oil Development Co.

Recovery of butadiene from gaseous mixture containing unsaturated hydrocarbons having 4 carbon atoms to molecule which comprises contacting with solution of 20% cuprous chloride, 30% formamide, 22% concentrated HCl and 28.0% ethylene glycol. No. 2,386,044. Egi Fasce to Jasco, Inc.

Preparation of the sodium salt of 4.4'-diaminodiphenyl-sulphone-N-N'-diglucosesulphonic acid. No. 2,386,037. Andre Demolis to Aktiengesellschaft vormals B. Siegfried.

Reacting 5,5-di-substituted-4-imino barbituric acids, the 5,5-di-substituted-4-imino-2-thio-barbituric acids, etc., with hydrogen sulphide, and recovering resultant compound. No. 2,386,026. Charles Wilson and James Boothe to Regents of the University of Minnesota.

Producing aromatic ketone which comprises subjecting aromatic hydrocarbon to contact with carboxylic acid chloride in presence of catalyst formed by zinc chloride and a carrier. No. 2,386,007. Louis Schmerling and Vladimir Ipatieff to Universal Oil Products Co.

Separating mixture of organic compounds of different degrees of saturation which comprises treating mixture under conditions to form extract phase and a raffinate phase with solvent comprising alkyl sulfonamide containing NH_2 group. No. 2,385,981. Bernard Friedman to Universal Oil Products Co.

Ester of (A) one molecular equivalent of tetraethylene glycol and (B) two molecular equivalents of half ester of carbonic acid and alcohol of group of allyl, methallyl and crotyl alcohols. No. 2,385,930. Irving Muskat and Franklin Strain to Pittsburgh Plate Glass Co.

Sulphurized glyceryl esters of tall oil and method for making same. No. 2,385,912. Gifford Davis and Edwin Barth to National Oil Products Co.

Condensation products of aldehydes and unsaturated ester amides. No. 2,385,911. Albert Chenicek to Pittsburagh Plate Glass Co.

Production of diphenyl sulphones that comprises reacting aqueous solution of alkali metal hypohalogenite with hot, vigorously agitated, glacial acetic acid solution of compound of class consisting of 4,4'-di(acylamino)-diphenyl sulphide, etc., and recovering corresponding 4,4'-disubstituted-diphenyl sulphone. No. 2,385,899. John Weijlard and John Messerly to Merck & Co. Inc.

Monohydroxy ester of a straight chain saturated monocarboxylic fatty acid and a straight chain saturated alkyl monohydroxy alcohol. No. 2,385,849. Foster Snell and Albert Guiteras to Chem-search Corp.

Alkylenediamine salt of 2.4-dinitro-6-cyclohexyl-phenol. No. 2,385,848.

Frank Smith and John Hansen to The Dow Chemical Co.

N-hydrocarbon substituted alkanol-amine salts of dinitro-phenols. No. 2,385,795. Gerald Coleman and Frank Smith to The Dow Chemical Co.

Phenyl endoethylene cyclopentanol, a hydration-rearrangement product of 2,5-endomethylene-1,2,5,6-tetrahydrodiphenyl. No. 2,385,790. Herman Bruson to The Resinous Products & Chemical Co.

Preparing norendomethylene hexahydrofluorenyl alcohol which comprises reacting aqueous sulfuric acid with 1,4-endomethylene tetrahydrofluorene. No. 2,385,789. Herman Bruson to The Resinous Products & Chemical Co.

Hydroxydihydronorpolycyclopentadienes and method for their preparation. No. 2,385,788. Herman Bruson to The Resinous Products & Chemical Co.

Aryloxydihydronorpolycyclopentadiene, acid-catalyzed, addition-rearrangement product of aromatic benzenoid compound having phenolic hydroxyl group and a crystalline polycyclopentadiene, said product being a dihydronorpolycyclopentadienyl ether of said benzenoid compound. No. 2,385,787. Herman Bruson to The Resinous Products & Chemical Co.

Making a tertiary mercaptan from a monomeric tertiary base olefin containing four to five carbon atoms which comprises, passing tertiary base olefin with hydrogen sulfide through reaction zone containing non-plastic clay-type catalyst. No. 2,387,224. Darwin Badertscher, Harry Coonradt and Duncan Crowley to Socony-Vacuum Oil Co. Inc.

Making 2-amino-thiazole, by reacting a bis- (alpha beta-dihaloethyl) ether with thiourea in presence of water. No. 2,387,212. Edgar Britton and Kenneth Harding to The Dow Chemical Co.

Producing mono-acyl derivatives of ethylene diamine in which acyl group contains from 12 to 14 carbon atoms. No. 2,387,201. Nathan Weiner to Bonneville, Ltd.

5-Aminohexahydropyrimidines and process for preparing same. No. 2,387,043. Murray Senkus to Commercial Solvents Corp.

Aliphatic dinitro tetrols. No. 2,387,019. Henry Hass and Wilbur McElroy to Purdue Research Foundation.

Separation of butadiene from a C_4 hydrocarbon mixture comprising n-butane, butadiene, isobutane, butene-1 and isobutene. No. 2,386,983. Walter Schulze and John Hillyer to Phillips Petroleum Co.

Alkylation of aromatic compounds. No. 2,386,982. Raymond Schaad to Universal Oil Products Co.

Producing xylene which comprises contacting diethylbenzene with catalyst comprising oxide of element from left-hand column of group VI of periodic table. No. 2,386,969. William Mattox to Universal Oil Products Co.

Stabilizing a bis (alkylthiazyl) disulphide which comprises treating solution of disulphide in water immiscible solvent with aqueous solution containing alkali metal hydroxide, separating solutions, and separating purified disulphide from solvent. No. 2,386,959. Jacob Jansen to The B. F. Goodrich Co.

Treatment of aliphatic hydrocarbon to produce aromatic hydrocarbons therefrom which comprises subjecting aliphatic hydrocarbon to contact with composite catalyst comprising zinc oxide, copper and alumina. No. 2,386,957. Vladimir Ipatieff and Vladimir Haensel to Universal Oil Products Co.

Catalytically dehydrogenating paraffins to olefins. No. 2,386,947. Karl Hachmuth to Phillips Petroleum Co.

Urea Pyridinium compounds. No. 2,386,937. Melvin De Groote and Bernhard Keiser to Petrolite Corp. Ltd.

Certain pyridinium compounds and method of making the same. No. 2,386,936. Melvin De Groote and Bernhard Keiser to Petrolite Corp. Ltd.

Isomerizing a branched-chain olefin having double bond adjacent to branch which includes providing mixture of branched-chain olefin and concentrated aqueous hydrochloric acid, and heating. No. 2,386,934. Paul Cramer to General Motors Corp.

Separation of poly from monoamino acids. No. 2,386,926. Richard Block to C. M. Armstrong, Inc.

Manufacture of 1,2,3,4-tetrazole compounds. No. 2,386,869. John Kendall to Ilford Ltd.

Isomerization process which comprises contacting normal butane with liquid aluminum chloride-hydrocarbon complex catalyst and hydrogen chloride in absence of added hydrogen, etc. No. 2,386,784. Nathan Fragen to Standard Oil Co.

Selectively separating a tertiary base olefin in the vapor phase from hydrocarbon mixture containing tertiary base olefin and hydrocarbon other than tertiary base olefin. No. 2,386,774. Darwin Badertscher, Harry Coonradt, and Duncan Crowley to Socony-Vacuum Oil Co. Inc.

Selectively separating tertiary base olefin selected from isobutylene, trimethyl ethylene and unsymmetrical methyl ethyl ethylene from hydrocarbon mixture containing said tertiary base olefin and non-tertiary base olefin. No. 2,386,772. Darwin Badertscher, Harry Coonradt and Duncan Crowley to Socony-Vacuum Oil Co. Inc.

Making tertiary mercaptan from a tertiary base olefin selected from isobutylene, trimethyl ethylene and unsymmetrical methyl ethyl ethylene. No. 2,386,771. Darwin Badertscher, Harry Coonradt and Duncan Crowley to Socony-Vacuum Oil Co. Inc.

Purifying butadiene containing a tertiary base olefin as contaminant. No. 2,386,770. Henry Daley, Duncan Crowley and Darwin Badertscher and Harry Coonradt to Socony-Vacuum Oil Co. Inc.

Selectively separating tertiary base olefin selected from isobutylene, trimethyl ethylene and unsymmetrical methyl ethyl ethylene from a hydrocarbon mixture containing said tertiary base olefin and non-tertiary base olefin. No. 2,386,769. Darwin Badertscher, Harry Coonradt, and Duncan Crowley to Socony-Vacuum Oil Co. Inc.

Lactones and process of making same. No. 2,386,749. Leopold Ruzicka to Ciba Pharmaceutical Products, Inc.

Preparing alpha naphthylmethyl chloride, which comprises introducing excess of dry HCl gas into fused mixture consisting of naphthalene and paraformaldehyde. No. 2,387,102. Charles Funk, Jr. to American Cyanamid Co.

Production of cyclic oxygen compounds which consists in heating in absence of added free hydrogen alicyclic mono amino compounds, containing six-membered carbocyclic rings, in presence of excess of hydroxy-containing compound selected from water and alcohols and hydrogenation catalyst. No. 2,387,617. Willi Schmidt and Karl Seydel.

Making substituted cyclopenteneones which comprises cyclizing diketones of formula described in patent. No. 2,387,587. Heinz Hunsdiecker.

Reaction products of melamine with formaldehyde-yielding compound, in form of solid methylol-melamine crystals free from resinous or amorphous materials. No. 2,387,547. Gustave Widmer and Willi Fisch to Ciba Products Corp.

Contacting normal paraffin containing four carbon atoms per molecule with aluminum halide catalyst mass arranged in bed of solid catalyst to effect simultaneous isomerization and distillation of isomerized products from catalyst bed, etc. No. 2,387,541. William Sweeney to Standard Oil Development Co.

Di-cyclohexyl amine salt of alkyl phosphoric acid useful as rust preventive compounds. No. 2,387,538. Herschel Smith and Troy Cantrell to Gulf Oil Corp.

Fatty amine salts of alkyl phosphoric acids useful as rust preventive compounds and for other purposes. No. 2,387,537. Herschel Smith and Troy Cantrell to Gulf Oil Corp.

Dehydrogenating hydrocarbons in continuous operation which comprises providing pair of reactors containing dehydrogenation catalyst consisting of magnesium oxide and iron oxide, copper oxide, and potassium oxide, etc. No. 2,387,524. Richard Meinert to Standard Oil Development Co.

Preparation of acetals which comprises reacting acetylene with a monohydric alcohol ester of hydroxyacetic acid under anhydrous conditions in presence of mercury catalyst. No. 2,387,495. Donald Coffman to E. I. du Pont de Nemours & Co.

Acetylene generator. No. 2,387,462. Karl Nordholm to Aktiebolaget Svenska Carbidkontoret.

Producing aromatic orthodinitrile which comprises reacting corresponding diamide with phosphorus oxychloride in liquid reaction medium comprising organic tertiary base. No. 2,387,435. Maurice Fleysher to Allied Chemical & Dye Corp.

Pyrolyzing unsaturated aldehydopyran and condensing and recovering reaction products as rapidly as formed. No. 2,387,306. Walter Toussaint to Carbide and Carbon Chemicals Corp.

Production of 2,6-intro chlor benzyl bromide by bromination of 2,6-nitro chlor toluene. No. 2,387,341. James Ogilvie to Allied Chemical & Dye Corp.

Improving unstable oxidized monocyclic terpenes which comprises treating oxidized terpenes with hydrogen in contact with nickel catalyst until components capable of spontaneous exothermic reaction are eliminated. No. 2,387,304. Donald Sheffield to Hercules Powder Co.

Oily, sulphur-containing reaction product obtained by reaction of a cardanol ether and elementary sulphur. No. 2,387,286. Ferdinand Otto to Socony-Vacuum Oil Co. Inc.

Converting fluoro-bromo alkanes to different fluorine and bromine containing compounds. No. 2,387,247. Frederick Downing, Anthony Benning and Robert McHarness to Kinetic Chemicals, Inc.

Paints, Pigments

Printing paste containing carbohydrate thickener water soluble diazonium salt derived from ice color diazo component and organic nitrogenous base soluble in aqueous mineral acids, etc. No. 2,386,646. Frederic Adams, Hans Lecher and William Hardy to American Cyanamid Co.

Reducing particle size of calcined titanium dioxide and producing free-flowing pigment, which comprises adding to titanium dioxide, zinc resinate, pulverizing mixture in air stream. No. 2,386,885. Charles Downs and Harold Saunders to The Sherwin-Williams Co.

Producing finished titanium pigment which comprises treating pigment, after calcination, with two solbule compounds of amphoteric metals, one of which is tetravalent and other trivalent. No. 2,387,534. George Seidel to E. I. du Pont de Nemours & Co.

Preparing basic alkaline earth chromito-chromate pigment which comprises subjecting finely-divided, mixture of alkaline earth chromate and alkaline earth compound which is heat-decomposable to the oxide, to roasting treatment. No. 2,387,528. Gordon Patterson and Clifford Sloan to E. I. du Pont de Nemours & Co.

As pigment for coating compositions, discrete particles of mica having thin layer consisting of aluminum, adhered to their surfaces by deposition, said pigment possessing leafing properties. No. 2,387,243. Wilbur Castor.

Paper, Pulp

Treating residual liquor from digestion of cellulosic fibrous material in pure magnesium base sulphite cooking liquor and separation from pulp in pulp washing system. No. 2,385,955. George Tomlinson.

Apparatus for determining moisture content of pulp samples for quantitive calculations during manufacture of pulp. No. 2,385,809. Ray Hooper to Ecusta Paper Corp.

Glassine paper comprising paper pulp, glycerine, and alginate homogeneously incorporated to render same oil-resistant and transparent. No. 2,387,429. Paul Cate to Kelco Co.

Petroleum

Separation of conjugated diolefins from gas mixtures. No. 2,386,734. I. Louis Wolk to Phillips Petroleum Co.

Alkylation of isoparaffins with olefins in presence of liquid hydrogen fluoride. No. 2,386,681. Stuart Hadden to Socony-Vacuum Oil Co. Inc.

Separating aliphatic conjugated diolefins from hydrocarbon mixtures. No. 2,386,379. I. Louis Wolk to Phillips Petroleum Co.

Recovering aliphatic conjugated diolefins from hydrocarbon fluids containing same. No. 2,386,366. Joseph Storment to Phillips Petroleum Co.

Recovery of aliphatic conjugated diolefins from hydrocarbon mixtures containing same and close-boiling non-diolefinic hydrocarbons of same boiling range by contacting mixture with reagent containing cuprous halide and thereby causing said diolefin to selectively react with said cuprous halide to form solid diolefin-cuprous halide complex mechanically retaining unreacted non-diolefinic hydrocarbons, and thereafter desorbing diolefin from said solid complex by heating. No. 2,386,360. Graham Short to Phillips Petroleum Co.

Separation of unsaturated hydrocarbons from hydrocarbon fluids comprising contacting fluids with cuprous halide reagent to form cuprous halide-unsaturated hydrocarbon complex addition compounds. No. 2,386,358. Walter Schulze and Lloyd Morris to Phillips Petroleum Co.

Separating aliphatic conjugated diolefins from hydrocarbon liquids containing same and close-boiling non-diolefinic hydrocarbons by contacting with reagent comprising salt of monovalent heavy metal of groups I and II of periodic system which reacts with aliphatic conjugated diolefins to form a hydrocarbon-insoluble solid metal salt-diolefin complex, etc. No. 2,386,357. Walter Schulze and Lloyd Morris to Phillips Petroleum Co.

Separation of diolefins from mixtures which comprises contacting mixtures with cuprous halide dissolved in olefins to separate said diolefins as insoluble diolefin-cuprous halide complex. No. 2,386,356. Walter Schulze and Lloyd Morris to Phillips Petroleum Co.

Separation of diolefins from mixtures containing same which comprises contacting olefin-containing liquid with solid cuprous halide reagent to form solution of cuprous halide in said liquid, contacting solution with a diolefin-containing mixture and forming insoluble cuprous halide-diolefin complex, etc. No. 2,386,355. Walter Schulze and Lloyd Morris to Phillips Petroleum Co.

Additional patents on all other classifications from the above volumes will be given next month.

Abstracts of Canadian Patents

Collected from Original Sources and Edited

Requests for further information or photostated copies of the patents reported below should be addressed to the Commissioner of Patents and Copyrights, Department Secretary of State, Ottawa, Canada.

CANADIAN PATENTS

Granted and Published Sept. 25, 1945.

Recovery of anhydrous furfural from aqueous solution of mixtures thereof by ethylene dichloride extraction. No. 430,227. Theodore O. Wentworth.

Catalytically hydrogenating liquid phase chemicals employing hydrogen and palladium-resin catalyst, in which the resin acts as protective colloid for the colloidal palladium. No. 430,236. Baker & Co. Inc. (F. F. Nord)

Catalyst composed of colloidal solution of palladium, soluble vanadium compound, and polyvinyl alcohol. No. 430,237. Baker & Co. Inc. (F. F. Nord)

Separation of intermixed divided materials of differing densities by feeding over inclined, reciprocating, air-pervious surface, with determinable air pressure and incline angle. No. 430,238. The Birtley Co. Ltd. (C. W. H. Holmes)

Plastic material obtained by simultaneously hydrolyzing and acetalizing an infusible, insoluble, copolymer of vinyl acetate and diallyl phthalate. No. 430,244. Canadian General Electric Co. Ltd. (G. F. D'A'elio)

Process for elimination of bubbles from extruded polyhexamethylene adipamide. No. 430,247. Canadian Industries Ltd. (Geo. Graves).

Wire coating composition composed of uniform blend of a cellulose ether with reaction product of formaldehyde with a hydrolyzed, polymerized, vinyl ester. No. 430,249. Canadian Industries Ltd. (D. D. Payne)

Manufacture of furan by passing vapours of furfuraldehyde over lime at 350 to 550 Cent. No. 430,250. Canadian Industries Ltd. (O. W. Cass, L. G. Cliver)

Process for making crimped, wool-like, filaments from melt-spinnable, linear polyamide. No. 430,251. Canadian Industries Ltd. (V. R. Hardy)

Extrusion process for manufacture of coarse (.020 inch) linear polyamide filaments. No. 430,252. Canadian Industries Ltd. (R. T. Fields)

Removal of nitrogen oxides from sulphuric acid by addition of ferrous sulphate and blowing with air. No. 430,253. Canadian Industries Ltd. (N. C. Somers, W. C. Wooding)

Process for simultaneously heat treating aluminum alloys and maturing thereon vitreous enamel coatings. No. 430,254. Canadian Industries Ltd. (A. J. Deyrup, C. Robertson)

Manufacture of stilbene dyestuffs by condensing two mols. of aminoazobenzene with one mol. of dinitrostilbene disulphonic acid. No. 430,277. J. R. Geigy A. G. (Ernst Keller)

Stilbene dyestuff and process for manufacture thereof. No. 430,278. J. R. Geigy A. G. (Ernst Keller)

Triazo dyestuff. No. 430,279. J. R. Geigy A. G. Adolf Krebser, Werner Bossard)

Thermosetting adhesive in aqueous suspension containing blood derivative-phenol reaction product, free of formaldehyde, and alkali to render pH 7—10. No. 430,287. I. F. Laucks Ltd. (O. Carmichael)

Mothproofing wool by application of mineral spirit solution of 1—25 per cent olefinic nitrile of 14—30 carbon atoms. No. 430,298. Shell Development Co. (W. E. Hall)

Production of cellular thermoplastic by admixture of solvent, heating under pressure, and sudden pressure release to rapidly volatilize solvent. No. 430,329. Henry Dreyfus (W. I. Taylor)

Making true solution of aluminum sulphate for paper sizing having pH of 3.8 to 4.2 by addition to aqueous solution of lime, magnesia, soda, carbonates thereof, and acetates. No. 430,330. Judson A. De Cew.

Process for producing dyestuffs of the dibenzanthrone series. No. 430,331. Walter Bruck.

Granted and Published Oct. 2, 1945

Manufacture of thermoplastic filaments and shaped materials from 200 Cent. softening material by incorporation of solvent which lowers softening temperature to about 100 Cent. No. 430,344. Henry Dreyfus.

Treatment of cellulose acetate filaments by stretching after formation from 10 to 20 times original length in hot water at 135—145 Cent. No. 430,345. Henry Dreyfus.

Producing stabilized processed fruits or vegetables by treatment with monohalogen acetic acid esters of hydroxy acids. No. 430,362. Martin V. H. Pronz.

Parasiticide composition containing basic tricupric arsenite, basic tricupric arsenate, and calcium sulphate, all co-precipitated as a composition of homogeneous, uniform particles. No. 430,398. Chipman Chemical Co. Inc. (F. J. Seibert, L. C. Roller)

Production of parasiticide composition of basic tricupric arsenate and calcium sulphate—co-precipitated. No. 430,399. Chipman Chemical Co. Inc. (F. J. Seibert, L. C. Roller)

Traveller for ring spinning and twisting consisting of metallic core and Nylon wearing surface. No. 430,400. The Clark Thread Co. (W. M. Camp)

Process for production of dispersible sulphur by heating sulphite lye and alkaline reagent, injecting molten sulphur into said solution and passing mixture under pressure through a jetting valve. No. 430,402. Cooper, McDougall & Robertson Ltd. (D. Rolle, R. McIntyre, E. S. R. Willmore)

Resin soldering flux having incorporated with it from 0.2 to 8 per cent acetyl pyridinium bromide. No. 430,429. Joseph Lucas Ltd. (H. Silman, W. Stein)

Manufacture of abrasive tool by mixing at least two carbides from group of boron, silicon and zirconium, and one metallic carbide, sintering, cooling, crushing, etc. No. 430,454. Leon Nussbaum, Hatim Attari.

Purification of crude poly-alpha-nitro-anthroquinone contaminated with a beta-nitro-anthraquinone by treatment with a sulphite to convert beta product into water-soluble derivative for separation. No. 430,456. Henry Dreyfus (H. C. Olpin, C. S. Argyle, F. Brown)

Granted and Published Oct. 9, 1945

Dewatering apparatus comprising horizontal oscillatory dewatering table. No. 430,477. Carl Gustav Halvar Lowenhielm

Insulating wire enamel coating composed of furan resin and linear polyamide solution. No. 430,505. Canada Wire and Cable Co. Ltd. (General Cable Corp., H. J. Kauth)

Acid-curing, thermosetting resin, prepared by intercondensation of urea, formaldehyde, and hydroxy-phenyl-carbamyl chloro methane. No. 430,508. Canadian General Electric Co. Ltd. (G. F. D'Alelio)

Formation of textile fibres of uniform softness, strength, flexibility and extensibility by extrusion of acetone solution of vinyl resin and rapid air drying. No. 430,517. Carbide and Carbon Chemicals Ltd. (E. W. Rugeley, T. A. Feild Jr., J. F. Conlon)

Process for manufacture of copper-containing diazo dyestuff. No. 430,524. J. R. Geigy A. G. (A. Krebser, W. Bossard)

Self-sealing fuel tank made of spun natural wool. No. 430,530. Hunt & Winterbotham Ltd. (V. Giles)

Corrosion resistant thermostatic metal composed of alloys containing: Mn, C, Cr, Si, Cu, and Fe; and Cu, Si, and Mn, in stated proportions. No. 430,551. Metals and Controls Corp. (P. G. Chace)

Unsulphonated azo dyestuffs, water-soluble, which are orange to red, brown, blue, or violet in colour. No. 430,573. Society of Chemical Industry in Basle (F. Felix, R. von Capeller)

Yellow, asymetric urea, diazo dyestuffs. No. 430,574. Society of Chemical Industry in Basle (Otto Kaiser)

Preparation of metallic catalyst for hydrogenation containing nickel in which the more electropositive portion of a prepared alloy is dissolved by 20 per cent acetic acid. No. 430,611. Fabriques de Produits Chimiques de Thann et de Mulhouse (Jos. Zeltner)

Producing printing colors by grinding composite siccative rosin containing polyalcohol and polyacid radicals with pigment, in presence of a solvent, and emulsifying pigmented enamel in water by use of emulsifying agent. No. 430,612. Compangie Nationale de Matieres Colorantes et Manufactures de Produits Chimiques du Nord Reunies Etablissements Kuhlmann (A. H. V. Durr)

Anti-diabetic compound for internal administration, containing antidiabetic principle of pancreas, combined with protective acid or basic dyestuff to prevent destruction by stomach acids. No. 430,613. Fritz Lasch, Egon Schonbrunner.

Bleaching dark colored sulfuric acid by subjecting to action of gaseous sulfur dioxide and heat. No. 430,614. Joseph Pierre Leemans.

Granted and Published Oct. 16, 1945

High frequency alternating current method of effecting localized heating in thermoplastic section. No. 430,648. Arc Manufacturing Co. Ltd. (W. J. Jarrad, M. R. Moritz, H. P. Zade)

Process for extrusion manufacture of tin-plated lead collapsible tubes. No. 430,654. Betts and Co. Ltd. (E. Statherdunn)

Atomization of magnesium and alloys by passing molten metal through a porous nozzle impregnated with magnesium chloride flux, and disintegrating metal stream by inert gas jet. No. 430,668. The Consolidated Mining & Smelting Co. of Canada Ltd. (R. Lepsoe)

Uniform, unmelted, soluble, solid, masticated heat reaction product formed by heating in vacuo a thin sheet of unvulcanized rubber, salt of strong acid, weak acid, and less than 3 per cent sulfur. No. 430,678. The Honorary Advisory Council for Scientific and Industrial Research (T. R. Griffith)

Fluid-medium grinding and pressing method for production of super-fine asbestos. No. 430,679. The Honorary Advisory Council for Scientific and Industrial Research (Abraham van Winsen)

Firm, low-density heat insulation composed of cellular regenerated cellulose bonded with phenol-formaldehyde resin. No. 430,707. Camille Dreyfus (C. I. Haney, M. E. Martin)

Granted and Published Oct. 23, 1945

Two stage continuous flow process of isomerisation and alkylation of normal butane for production of higher molecular weight saturated hydrocarbons. No. 430,719. Eric Wm. Musther Fawcett, Gwilym Islwyn Jenkins.

Production of branched chain hydrocarbons from normal paraffins employing treating feedstock at 50-200 Cent. in presence of anhydrous aluminum halide-hydrated aluminum halide catalyst containing silica gel. No. 430,762. Anglo-Iranian Oil Co. Ltd. (E. W. M. Fawcett, E. S. Narracott)

Trademarks of the Month

A Checklist of Chemical and Chemical Specialties Trademarks

416,931. Nu-Enamel Corp., Chicago, Ill.; filed Jan. 10, 1945; Serial No. 478,466; for paint enamel; since Aug. 22, 1944.

417,018. Max Winter, as Max Winter's Chemical Laboratory, Reading, Pa.; filed June 6, 1944; Serial No. 470,951; for liquid cleaner, fogging preventive for lenses; since February 1941.

417,250. Hillyard Chemical Co., St. Joseph, Mo.; filed July 10, 1944; Serial No. 472,062; for liquid preservative for composition floors; since June 17, 1934.

417,261. Spencer-Adams Paint Co., Atlanta, Ga.; filed Nov. 8, 1944; Serial No. 476,264; for quick-drying paint enamel; since Aug. 11, 1944.

417,265. Minnesota Mining & Mfg. Co., St. Paul, Minn.; filed Jan. 10, 1945; Serial No. 478,464; for pressure-sensitive adhesive tape; since January 1928.

417,271. G. W. Underhill, as G. W. Underhill & Co., Kansas City, Mo.; filed Apr. 9, 1945; Serial No. 481,929; for liquid adhesive cement; since October 1931.

417,275. Maas & Waldstein Co., Newark, N. J.; filed May 14, 1945; Serial No. 483,330; for fungus resistant paints; since Apr. 16, 1942.

417,392. Bert Minshall, as Minshall Products, San Antonio, Texas; filed Dec. 13, 1944; Serial No. 477,522; for cleaning paint brushes; since Aug. 31, 1943.

417,395. Oil-Dri Co. of America, Chicago, Ill.; filed Dec. 23, 1944; Serial No. 477,894; for Fuller's earth; since Sept. 1, 1944.

417,398. Interchemical Corp., N. Y.; filed Feb. 15, 1945; Serial No. 479,849; for household fungicide; since July 9, 1943.

467,540. Societe Anonyme Pour L'Industrie de L'Aluminium (Aluminium-Industrie-Aktien-Gesellschaft), chippis, Switzerland; filed Feb. 18, 1944; for metal powder and grits; since June 19, 1943.

472,415. Corn Products Refining Co., N. Y.; filed July 20, 1944; for monosaccharide; since July 1923.

475,461. Refined Products Co., Lyndhurst, N. J.; filed Oct. 18, 1944; for wet processing; since Mar. 1, 1944.

478,114. Adam Edwards, as Hi-Wards Products, Southgate, Calif.; filed Jan. 1, 1945; for automobile polish; since Oct. 24, 1944.

478,788. National Carbon Co. Inc., N. Y.; filed Jan. 19, 1945; for carbon and graphite electrodes; since July 26, 1944.

479,622. Hercules Powder Co., Wilmington, Del.; filed Feb. 9, 1945; for synthetic resin; since June 17, 1943.

479,666. E. I. du Pont de Nemours & Co., Wilmington, Del.; filed Feb. 10, 1945; for resinous fluorine-containing polymers; since Oct. 9, 1944.

480,263. Witco Chemical Co., Chicago, Ill.; filed Feb. 26, 1945; for gas carbon black; since January 1936.

480,265. Witco Chemical Co., Chicago, Ill.; filed Feb. 26, 1945; for gas carbon black; since January 1936.

480,314. Corn Products Refining Co., N. Y.; filed Feb. 28, 1945; for modified corn protein; since Mar. 10, 1944.

480,357. Armour Wallingsford, Los Angeles, Calif.; filed Feb. 28, 1945; for laboratory film ink; since Feb. 16, 1945.

480,404. Brunswig Drug Co., as Angelus Lab., Los Angeles, Calif.; filed Mar. 2, 1945; for solvent; since Mar. 1, 1910.

480,575. The C. P. Hall Co., Akron, Ohio; filed Mar. 7, 1945; for barytes, carbon black, clays; since Nov. 30, 1943.

481,122. Nuodex Products Co. Inc., Elizabeth, N. J.; filed Mar. 20, 1945; for dispersing agents for paints; since June 1944.

481,786. Herbert J. Heribert, N. Y.; filed Apr. 6, 1945; for adhesive cement; since Jan. 12, 1945.

482,429. L & R Organic Products Co. Inc., N. Y.; filed Apr. 21, 1945; for dye assistants, dyes; since Jan. 29, 1942.

482,534. The International Nickel Co. Inc., N. Y.; filed Apr. 24, 1945; for high expansion nickel alloy; since Mar. 24, 1945.

482,646. Resistoflex Corp., Belleville, N. J.; filed Apr. 26, 1945; for plasticizing solutions for preserving flexibility of compar; since Nov. 15, 1944.

482,647. Resistoflex Corp., Belleville, N. J.; filed Apr. 26, 1945; for paint for gas-proofing and solvent-proofing; since Nov. 15, 1944.

482,857. Synvar Corp., Wilmington, Del.; filed May 1, 1945; for solid urea-formaldehyde resins; since October 1942.

483,006. Physical and Chemical Corp., Chicago, Ill.; filed May 4, 1945; for catalytic addition agents to accelerate combustion and reduce knocking; since Mar. 19, 1945.

483,368. The F-R Corp., N. Y.; filed May 15, 1945; for soapless detergent; since June 12, 1944.

483,430. Hooker Glass & Paint Mfg. Co., Chicago, Ill.; filed May 16, 1945; for liquid paint; since May 4, 1945.

483,559. Tec Chemical Corp., N. Y.; filed May 18, 1945; for textile desizing agent; since May 14, 1945.

483,609. Dir-Kleen Co., Chicago, Ill.; filed May 21, 1945; for soapless cleaning compound; since May 11, 1945.

484,069. N. A. Woodworth Co., Ferndale, Mich.; filed June 1, 1945; for ferrous alloy; since May 10, 1945.

484,209. Mallinckrodt Chemical Works, St. Louis, Mo.; filed June 6, 1945; for alkanolamine carbonate polymers; since May 1, 1945.

484,334. Edward H. Arnott, as AG Chemical Products, Indianapolis, Ind.; filed June 9, 1945; for stock insecticide; since Mar. 19, 1945.

484,582. Nova Chemical Corp., N. Y.; filed June 15, 1945; for dyestuffs; since June 7, 1945.

484,673. Edwin Elston, Los Angeles, Calif.; filed June 18, 1945; for photographic chemicals; since Feb. 10, 1945.

484,794. Merritt Products Co., Cleveland, Ohio; filed June 20, 1945; for adhesive cement; since Aug. 1, 1944.

484,854. Onyx Oil & Chemical Co., Jersey City, N. J.; filed June 21, 1945; for fungicide; since May 1943.

484,915. The Solvay Process Co., N. Y.; filed June 22, 1945; for dyeing aids; since Apr. 3, 1945.

484,924. Ludwig Wilson Co., Chicago, Ill.; filed June 22, 1945; for detergent and cleaning compounds; since Dec. 31, 1932.

484,979. L. Sonneborn Sons, Inc., N. Y.; filed June 23, 1945; for U. S. P. white mineral oil; since Feb. 10, 1930.

485,167. L. Sonneborn Sons, Inc., N. Y.; filed June 28, 1945; for medicinal white mineral oil; since June 15, 1927.

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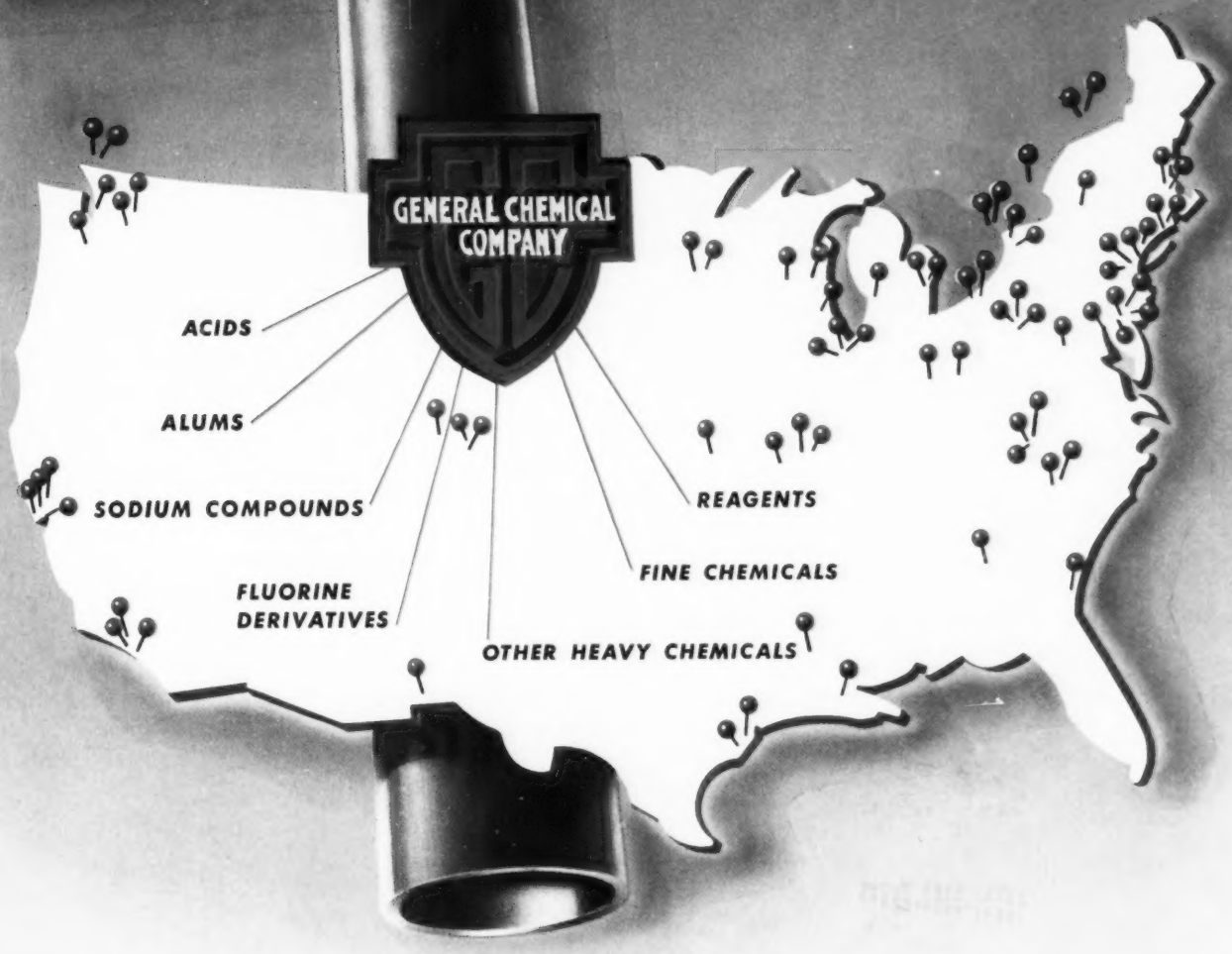

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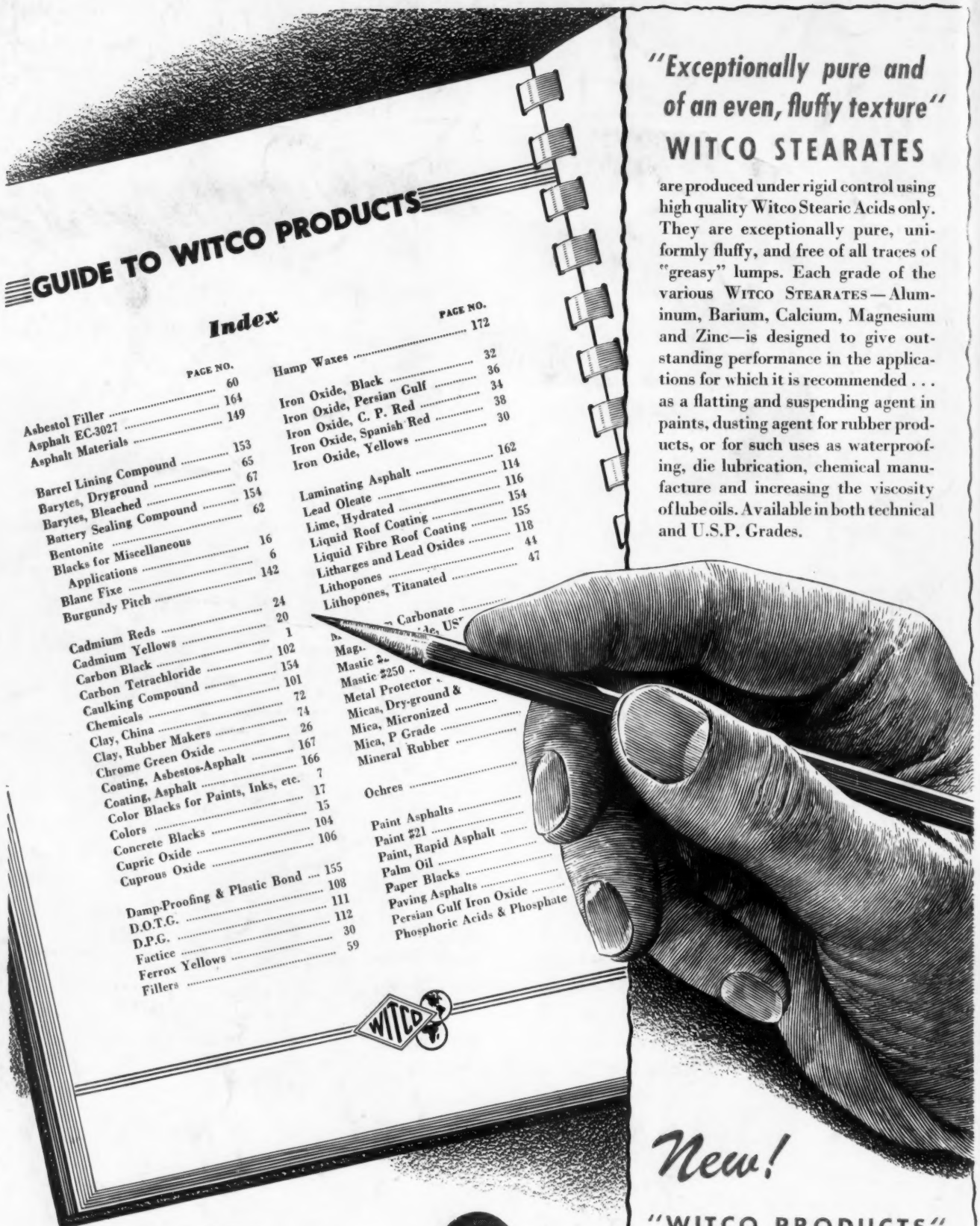

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